PERFORMANCE OF INFRASTRUCTURAL PARASTATALS IN KENYA SINCE INDEPENDENCE: TRANSPORT, COMMUNICATIONS AND ELECTRICITY

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PERFORMANCE OF INFRASTRUCTURAL PARASTATALS IN KENYA SINCE INDEPENDENCE: TRANSPORT, COMMUNICATIONS AND ELECTRICITY

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The paper examines the performance of seven parastatal firms including Kenya Airways, Kenya Railways, Kenya Pipeline, Kenya Power & Light, Kenatco, Kenya Posts and Telecommunications and Kenya Ports Authority. It is shown that those firms which enjoyed natural monopolies performed well financially, which allowed them to expand rapidly and avoid major operational problems. Those firms which faced more competition were more vulnerable financially, which led in turn to operating problems.

I. Introduction

This paper will examine the performance of parastatals which operate in transport or infrastructure. This sector is, of course, crucial to all other sectors of the economy. High transport costs can make other sectors uneconomic. Without basic infrastructure such as electricity and communications, development of any other sector is likely to remain stunted. In addition to the large indirect effect of infrastructure on the macro-economy, it has been estimated that the transport sector absorbs foreign exchange worth 40% of Kenya's exports each year.[1] Obviously efficient operation has an important direct impact on the country's macro-economic condition.

The sector has performed well in Kenya. In fact, superiority in this sector played a major role in making Kenya the location of choice for the headquarters of so many organizations, be they multinational corporations, U.N. agencies or private voluntary organizations.

The firms providing infrastructure services kept up with rapid economic growth during the first decade of independence. The second decade of independence has seen slower growth, but no one has ever suggested that it was the transport or infrastructural sectors which limited growth in that period.[2]

Public enterprises have been key actors in the infrastructure sectors. Electricity is provided entirely by the government-owned Kenya Power and Lighting Co.; communications are the monopoly of the Kenya Posts and Telecommunications. In transport there is somewhat more competition. The Kenya Pipeline Company monopolizes transport of white oil products from Mombasa-Nairobi. But the national trucking and taxi company, Kenatco, competes in a fiercely competitive market where entry and exit are largely free and prices unregulated.[3] Those transport firms in turn provide competition for Kenya Railways, though it is the only railroad in the country. Air transport to and from Kenya is provided by many different airlines, including the government-owned Kenya Airways.

This paper will begin, in section II, by analyzing the performance since independence of each of the seven parastatals in the sector. For each firm we will examine efficiency, profitability, and pricing issues. After we examine the data by firm in section II, we turn in section III to a broader analysis. We examine general issues of pricing policy as they relate to the need for funds for expansion, and the impact of different pricing policies on efficiency.

II. Performance of individual companies

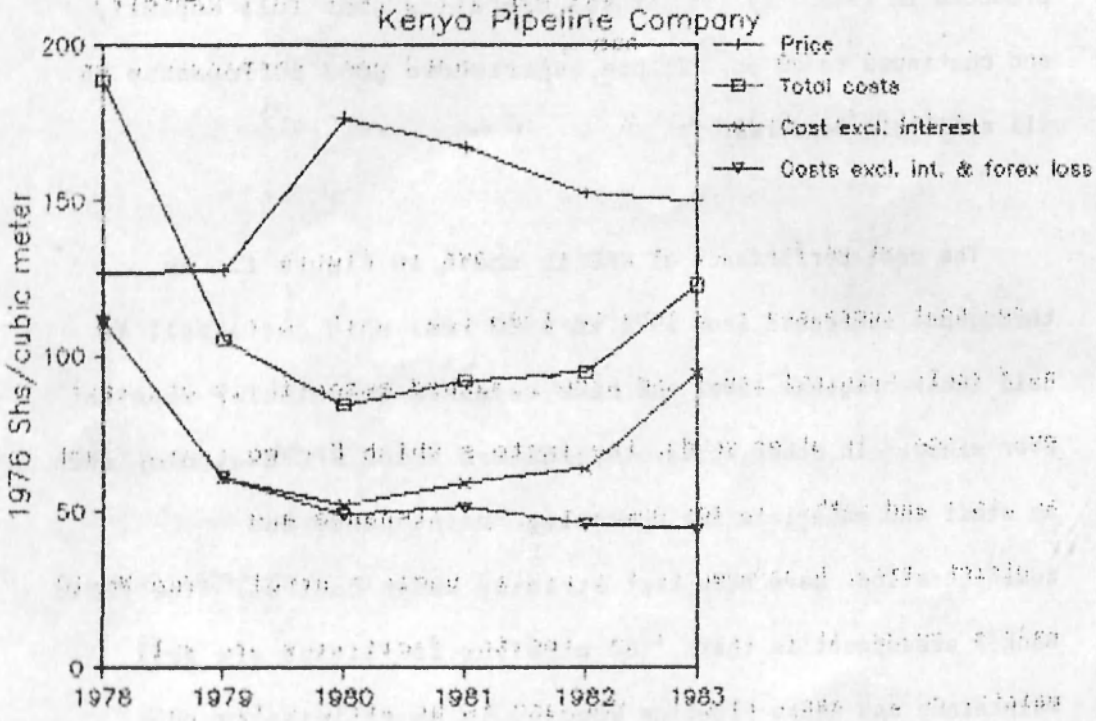
A. Kenya Pipeline Company

The Kenya Pipeline Company (KPC) began transporting bulk oil products in 1978. By 1980 it was operating near full capacity and continues to do so. It has experienced good performance on all available measures.

The cost performance of KPC is shown in Figure 1. As throughput increased from 1978 to 1980 real unit costs fell to half their original level and have remained essentially constant ever since. In other words, the factors which KPC controls, such as staff and materials for operating, maintenance and administration, have been kept strictly under control. The World Bank's assessment is that "the pipeline facilities are well maintained and Kenya Pipeline Company is an efficiently run operation,"[4] and that the pipeline "has helped lower transport system costs for petroleum in the Mombasa-Nairobi transport corridor."[5] However the devaluations of the early eighties have caused financial costs to drift upwards. As the KPC pays off its debts, interest payments will become a smaller part of total costs.

Figure 1 also shows the average price the KPC receives for transporting bulk oil products. This price is fixed by the price controller. Figure 1 reveals evidence of a regulatory lag in price adjustments. The average price at initiation of business

Fig 1 Price and Cost Performance



in 1978 was inadequate to cover total costs including interest, and it was only in 1980 that price caught up with 1978 cost levels. Since costs were actually falling sharply during this period, no serious financial problems resulted. Since 1980 real prices have drifted downward toward costs. If devaluation continues to impose higher costs on the KPC, and if the regulatory lag continues, it could result in financial problems, but certainly had not done so by 1983.

KPC has been highly profitable, as shown in Figure 2. Following a loss during the initial part year of operation, the KPC has earned very high rates of return. Total returns on net assets (ROI in Figure 2--defined as profit plus interest over net assets) have generally surpassed 25%, while returns on equity have generally been double that. Thus the KPC is quite able to meet its debt obligations and also has since 1980 made large contributions to the Treasury in the form of corporation tax and dividends as well. These contributions have averaged about 15% of the net assets of the Pipeline.

Finally, two aspects of the financial health of the KPC are shown in Figure 3. The KPC has largely been financed by debt. The ratio of equity to net assets has gradually increased from around .1 in 1978 to .4 in 1982, as retained earnings have mounted. Thus the generous pricing policies have permitted successful use of the risky strategy of high leverage. The

Fig 2 Financial Performance

Kenya Pipeline Company

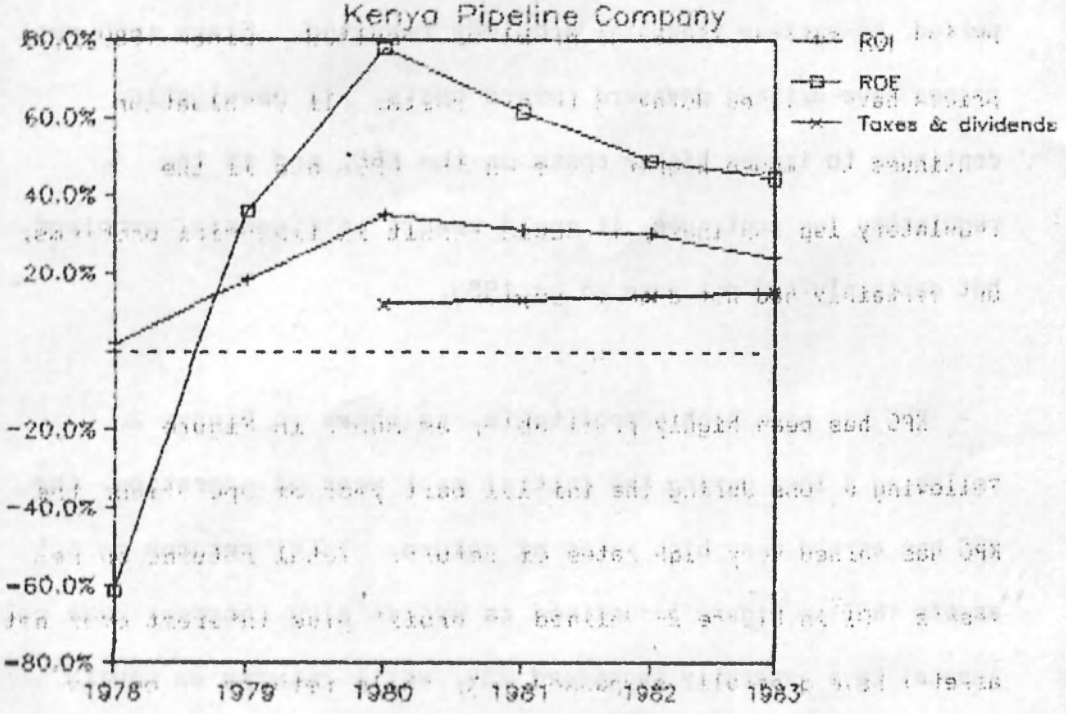
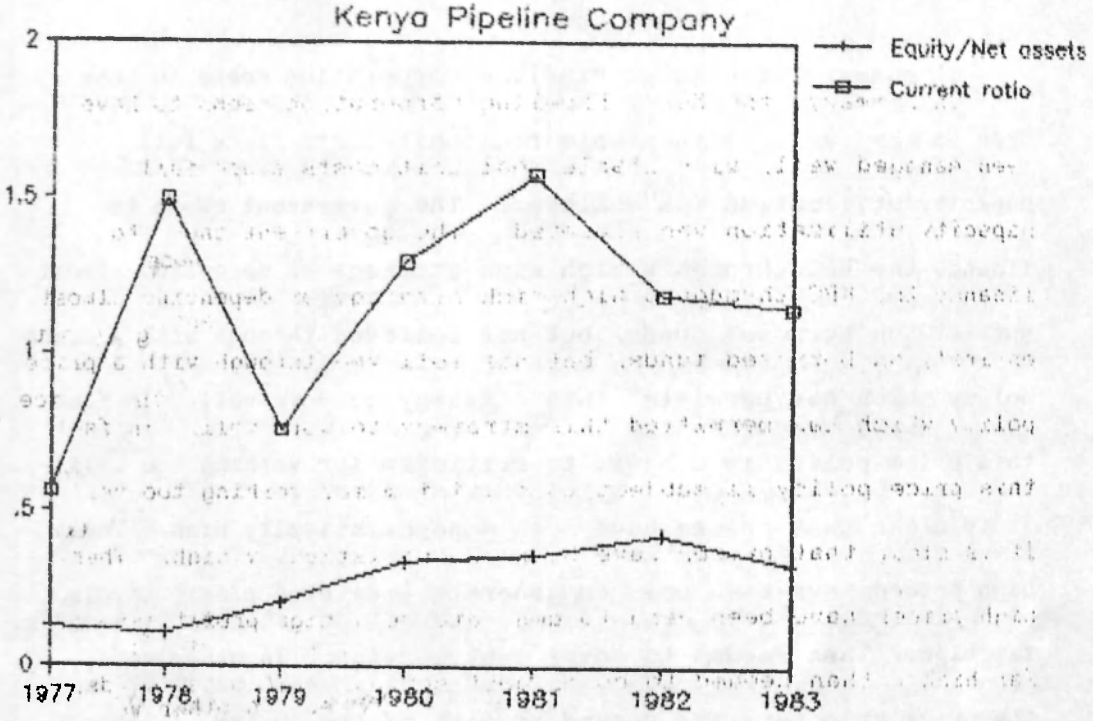


Fig 3 Financial Condition

Kenya Pipeline Company



current ratio has generally exceeded one, a healthy level. The policy of paying high dividends (in 1983 dividends exceeded profits) has kept the KPC from developing excess liquidity.

In summary, the Kenya Pipeline Corporation seems to have been managed well, with stable real unit costs since full capacity utilization was achieved. The government chose to finance the KPC through a high risk strategy of depending almost entirely on borrowed funds, but has followed through with a price policy which has permitted this strategy to work well. In fact this price policy is subject to criticism for working too well--it is clear that prices have been monopolistically high. These high prices have been used to generate very high profit levels, *far higher* than needed to cover debt service. In other words, the price structure has served as part of the system of taxes on consumption of petroleum products. There is no particular reason why such a tax should be levied via the transport system rather than directly. On the other hand, given the natural monopoly of the KPC on transporting oil products there is no particular distortion introduced by doing so.

B. Kenya Posts and Telecommunications

Kenya Posts and Telecommunications was started in 1978 following the breakup of East African Posts & Telecommunications.

Like its predecessor, the KP&T is enjoined under its enabling statute to "conduct its business according to commercial principles" and to ensure that, "taking one year with another" its revenues are sufficient to cover all its expenses, including the opportunity cost of capital. The KP&T, like the EAP&T before it, has always succeeded in that task.

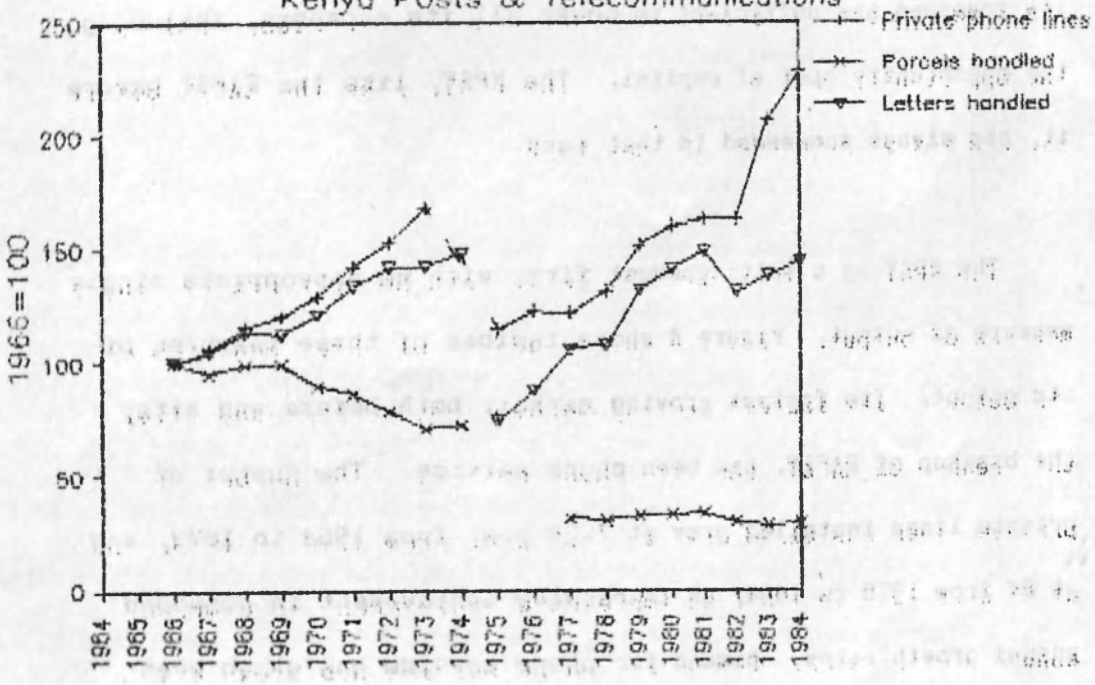
The KP&T is a multi-product firm, with no appropriate single measure of output. Figure 4 shows indices of three measures of its output. Its fastest growing market, both before and after the breakup of EAP&T, has been phone service. The number of private lines installed grew at 7.3% p.a. from 1964 to 1973, and at 8% from 1975 to 1984, an impressive achievement in compound annual growth rates. Demand for phone service has grown even faster, resulting in growing waiting lists and complaints about delays.

Demand for letter delivery has also grown fast, though not as fast as for phone service. It grew 5% p.a. from 1966 to 1974 and 7.7% p.a. from 1975 to 1984. In contrast, the demand for parcel delivery declined during the earlier period and then stagnated during the later period.

Unfortunately, the fact that there is no good index of output precludes calculation of either unit costs or revenues, so it is impossible to say with what degree of efficiency KP&T has

Fig 4 Indices of Output

Kenya Posts & Telecommunications



Note: Figures prior to 1975 include Tanzania and Uganda.

carried out its impressive expansion of services. It is also not possible to measure average consumer prices. KP&T annual reports mention several times that price adjustments were allowed only infrequently and after long delays.

According to the allocation of costs reported by KP&T between postal services on the one hand and telecommunications on the other, the latter service has been subsidizing the former almost continuously since 1973. No doubt this cross-subsidy was attractive on grounds of income distribution. It probably also reflects growing competition in the parcel delivery business.

The data shown in Figure 5 suggest that the delays in price adjustment were not so serious as to prevent the corporation from meeting its commercial objectives. The rate of return on net assets has fluctuated between 5 and 12%, while the return on equity has been consistently higher, fluctuating between 10 and 20%. Thus the corporation has charged prices adequate not only to meet its interest obligations, but also to permit some self-financing of expansion. KP&T does not pay corporation taxes or dividends; all operating surpluses are retained for reinvestment.

Figure 6 shows that the financial condition of the KP&T (and the EAP&T before it) has been very stable. Slightly over half of investment has been financed by borrowing, and there has been no tendency for the equity base to decline. The Corporation has

Fig 5 Rates of Return

Kenya Posts & Telecommunications

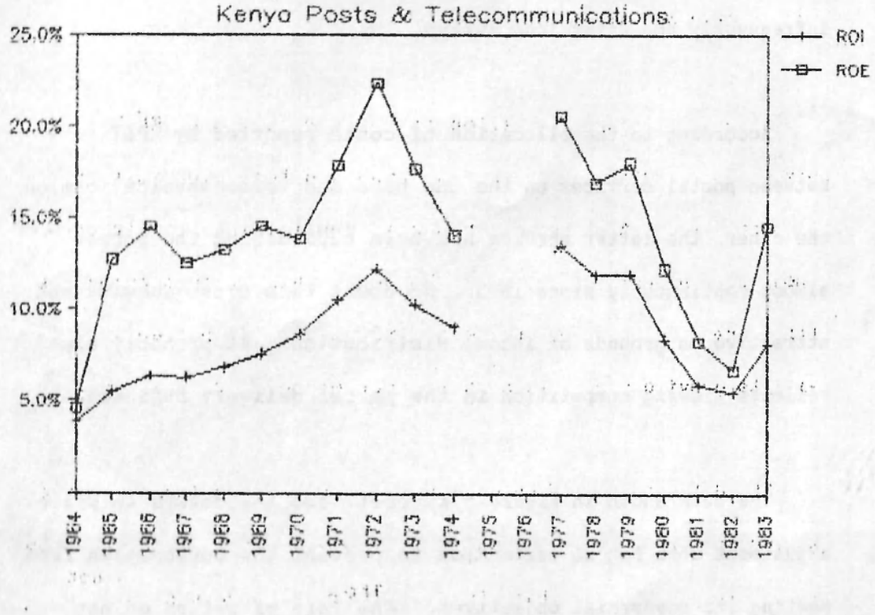
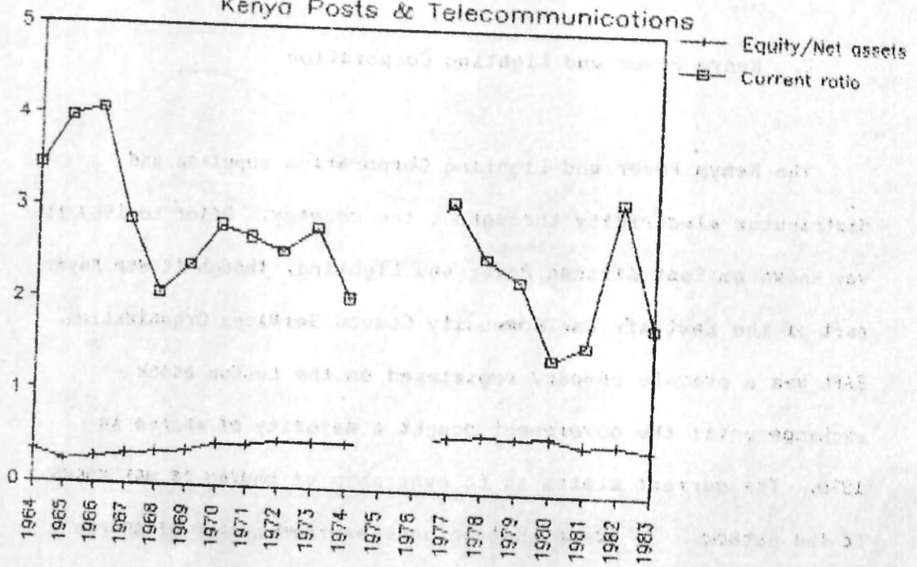


Fig 6 Financial Condition

Kenya Posts & Telecommunications



enjoyed healthy liquidity throughout the period since independence.

C. Kenya Power and Lighting Corporation

The Kenya Power and Lighting Corporation supplies and distributes electricity throughout the country. Prior to 1983 it was known as East African Power and Lighting, though it was never part of the East African Community Common Services Organization. EAPL was a private company registered on the London stock exchange until the government bought a majority of shares in 1970. Its current status as to ownership of shares is not known to the author. It seems that an undetermined number of shares are owned by the National Social Security Fund, in addition to some third of shares owned directly by government. KPL, in addition to generating some power also purchases electricity in bulk from its subsidiary, the Kenya Power Co., and from the Tana River Development Corporation.

The demand for electricity has grown very rapidly. Sales (measured in GWHrs) have grown at a rate of 7.4% p.a. from 1964-84. This impressive output expansion has been accompanied by impressive performance on most other measures as well.

Figure 7 shows the record on behavior of real unit costs.

Fig 7 Real Prices

Kenyo Power and Lighting Corp.

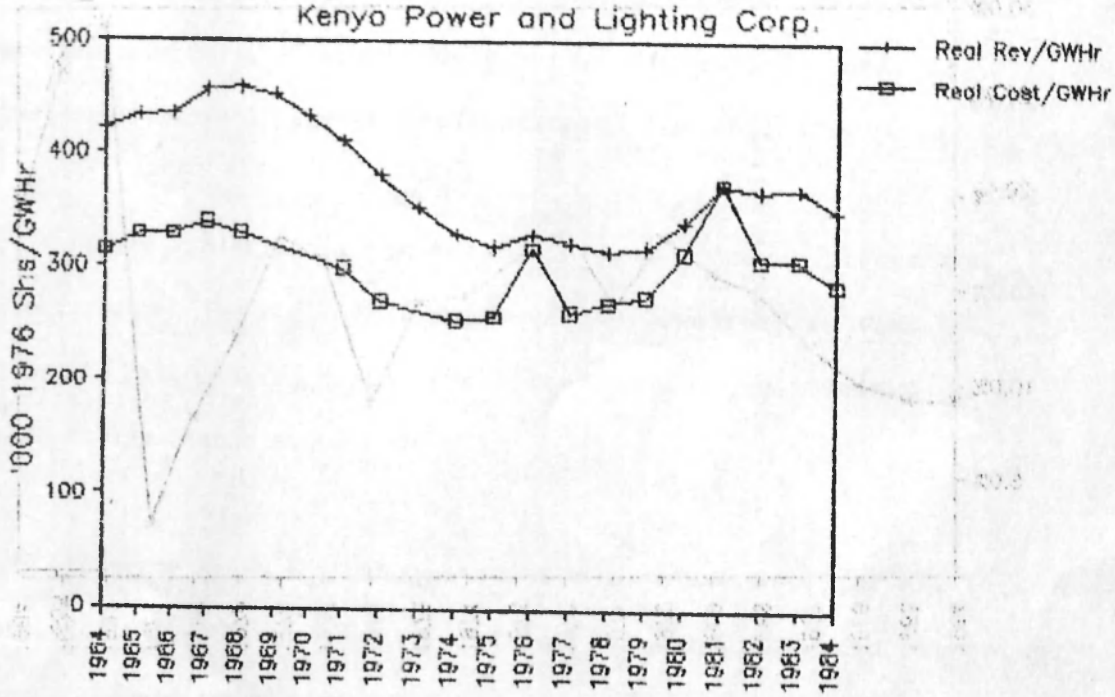
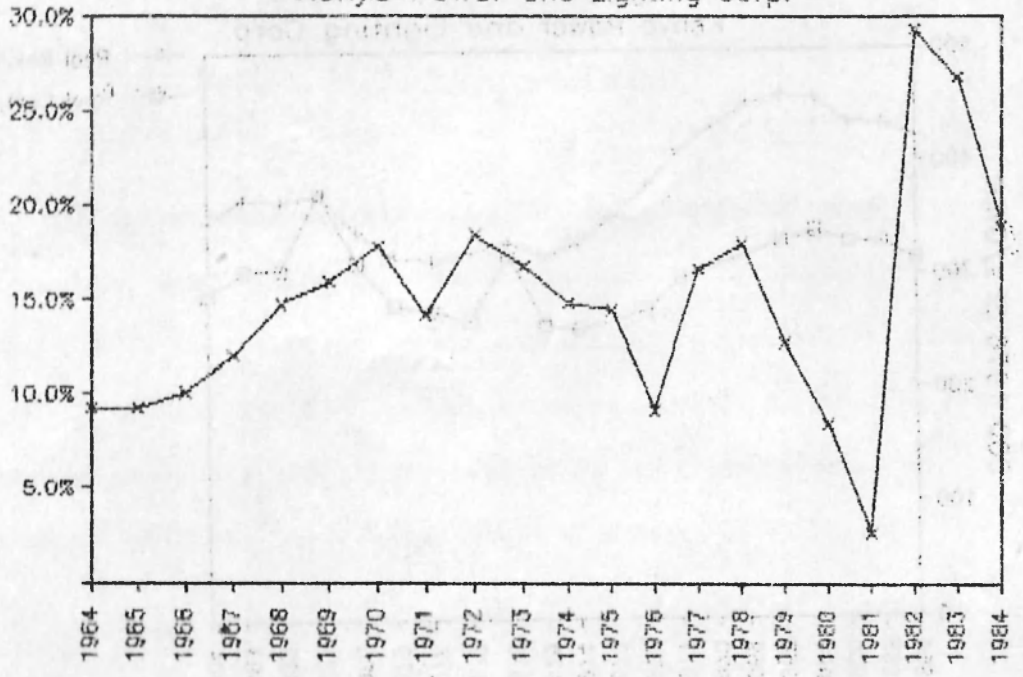


Fig 8 Rate of Return on Equity

Kenya Power and Lighting Corp.



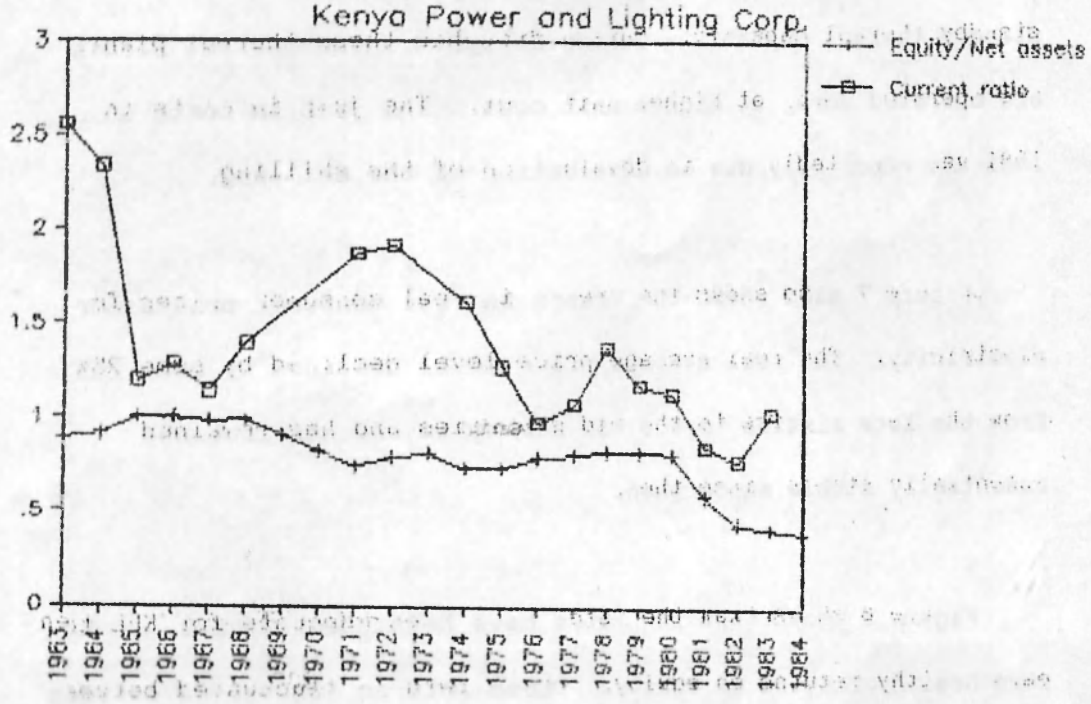
Costs have been stable throughout the post-independence period. Unit costs increased in 75/76 due to drought conditions. Much of Kenya's base generating capacity is hydroelectric, while it has standby thermal capacity. During droughts these thermal plants are operated more, at higher unit cost. The jump in costs in 1981 was reportedly due to devaluation of the shilling.

Figure 7 also shows the trends in real consumer prices for electricity. The real average price level declined by some 25% from the late sixties to the mid seventies and has remained essentially stable since then.

Figure 8 shows that the rates have been adequate for KPL to earn healthy returns on equity. These returns fluctuated between eight and sixteen percent from independence to 1980. After dipping lower in 1981 they have generally exceeded 20% during the eighties. Interest payments by KPL are not available, so it is not possible to compare returns on equity with returns on investment.

The financing of KPL has been fairly conservative, with low levels of borrowing. This is shown in Figure 9. The share of investment financed by equity never fell below 70% during the period 1963-80. Since 1981 KPL has borrowed much more heavily, with the share of net assets financed through borrowing rising to 50%. The high rates of return on equity shown in Figure 8 during

Fig 9 Financial Ratios



this period of heavy borrowing show that prices have remained more than adequate to permit KPL to meet its growing debt obligation. Figure 9 also shows that liquidity seems to have been adequate throughout the period.

Little information is available on how decisions are made about which areas should get priority in construction of new facilities. However, it appears from the notes in the annual reports that since 1978 KPL has operated a rural electrification scheme using funds provided by government and earmarked for this purpose. This scheme has accumulated losses, with resulting liquidity problems. Construction under the scheme was reported to have been suspended in 1984 due to these financial problems of the scheme. Though sales under the scheme grew at a 38% annual rate from 1979 to 1984, by 1984 they constituted less than 1% of sales. It appears, then, that KPL has not been used very extensively as an agent of district focus, certainly not on the scale of Kenya Commercial Bank,' for example.

D. Kenya Ports Authority

The ports in Kenya have gone through several organizational incarnations. At independence they were under the East African Railways and Harbours. From 1969 they were handled by the East African Harbours Corporation. Following the breakup of the East

African Community, they have fallen under the Kenya Ports Authority, established in 1978.

During the first decade of independence, cargo handled at the port of Mombasa grew steadily, at a compound annual rate of 5.1%. Since 1974 tonnage has been untrended, though some large swings have occurred. Since 1978 containerized cargo has grown very fast, averaging 51% per year. Throughput at Mombasa is shown in Figure 10.

Available information on real unit costs and revenues is shown in Figure 11. Unit costs were untrended during the days of EAR&H. During the operations of the KPA they were more volatile, but also appear to be untrended. They seem to have been higher by some 30% during the latter period than the former, but it is possible that some difference in basis of reporting could account for at least part of the difference.

The same conclusions apply to the behavior of real average revenue/ton. During the early period it was untrended. During the later period it was still untrended, but much more volatile. It appears that real average revenue/ton was higher by some 30% during the epoch of the KPA than during that of EAR&H, but the same caution applies to this interpretation.

That the level of prices has been adequate is demonstrated

Fig 10 Cargo Handled at Mombasa

Kenya Ports Authority

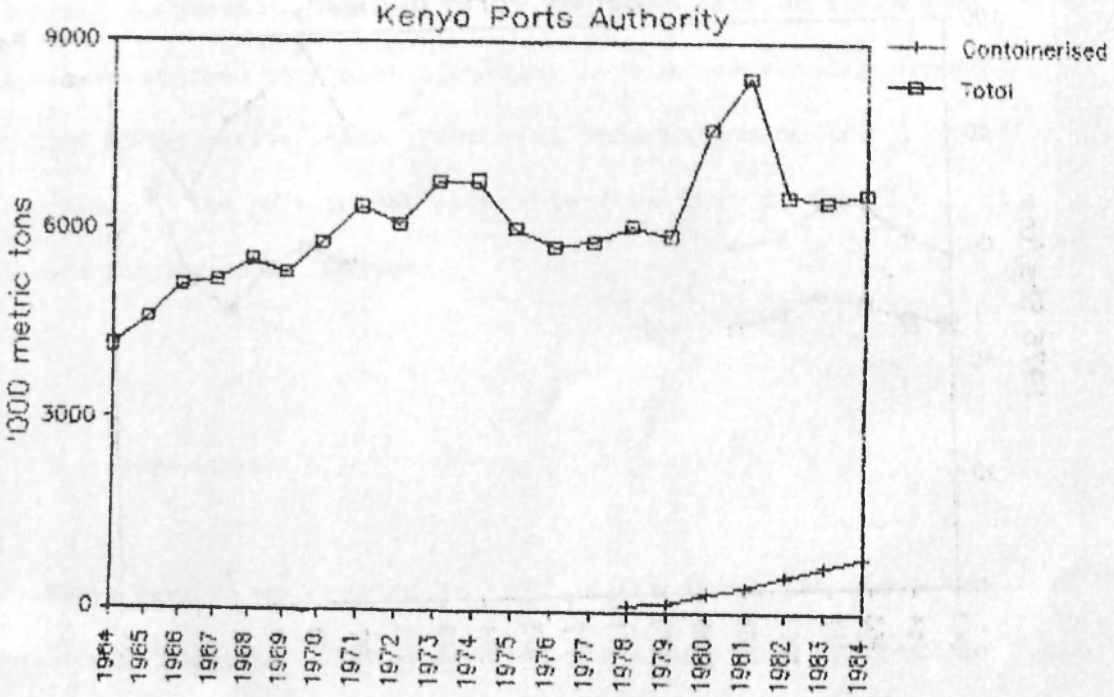
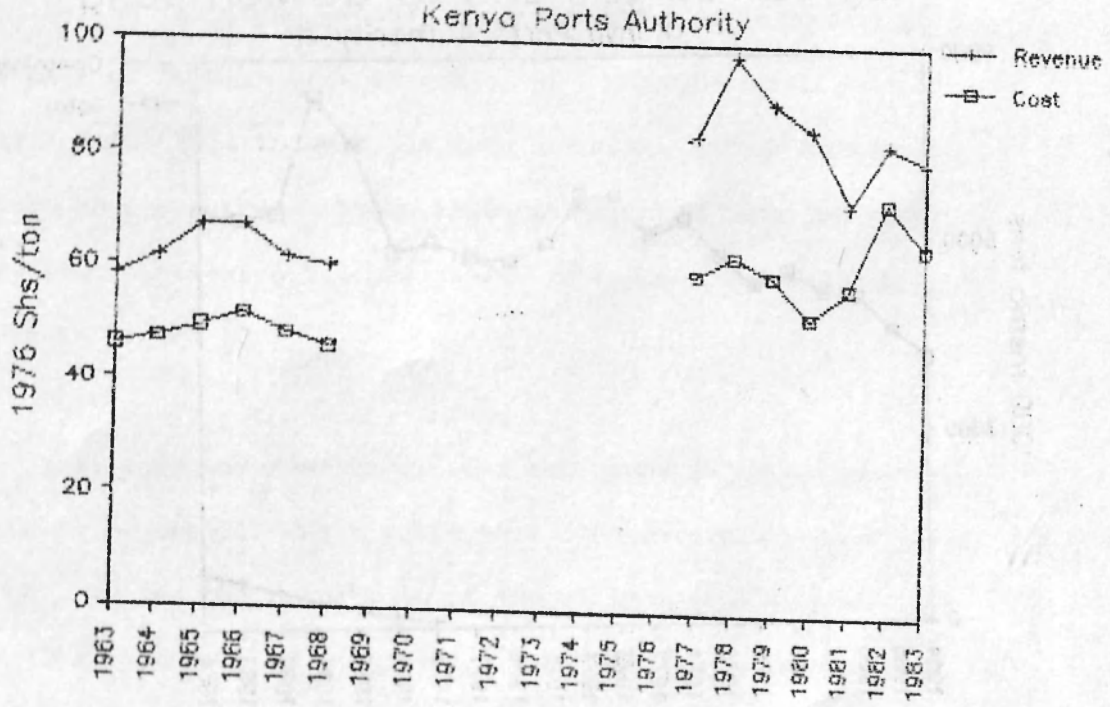


Fig 11 Price Performance

Kenya Ports Authority



in Figure 12. Rates of return averaged around 15% during 1977-80, and have averaged around 8% from 1981-83. The Ports have been able to finance about 85% of net assets without resort to borrowing, as shown in Figure 13. It can also be seen there that the KPA has enjoyed very high liquidity levels, especially around the time of the coffee boom. Financial information on the performance of the port is not separable from that of the railways for the years 1964-68.

E. Kenya Airways

Kenya Airways was created in 1977 as the local successor to East African Airways. It drew most of its staff from EAA, but no airplanes. When aircraft were purchased they were different types than those used by EAA, necessitating large-scale staff retraining. The accounting system initially used was also different from that of EAA. The first annual report stated that low staff education levels made re-training range from time consuming to impossible. The auditor's report on the accounts was highly qualified, and remained so for several years. It is clear that there was virtually no management information system during the early years and serious mismanagement cannot be ruled out.

From the beginning Kenya Airways had serious problems, and

Fig 12 Rates of Return

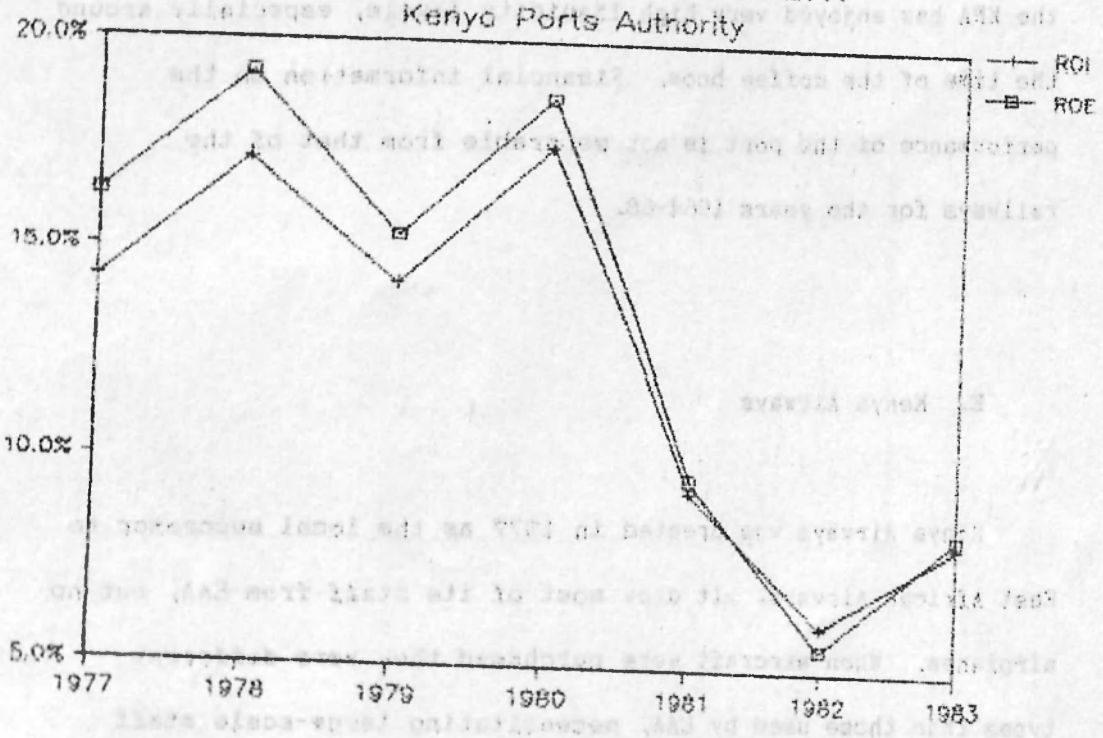
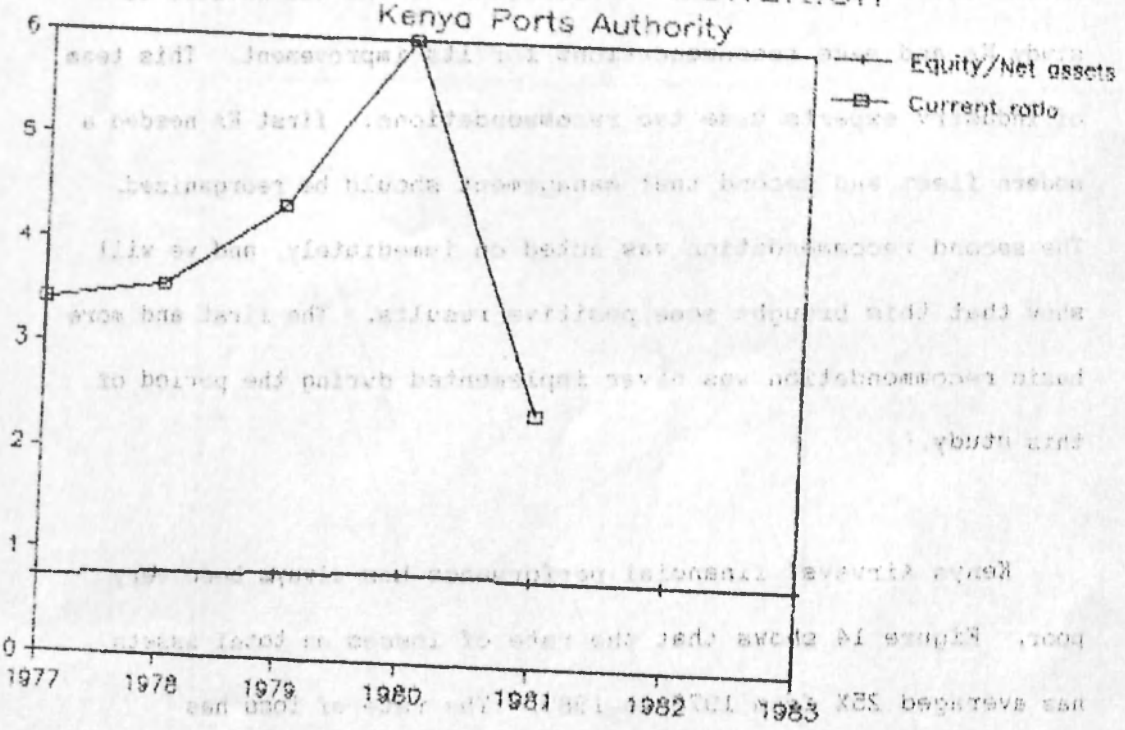


Fig 13 Financial Condition



these show up in the figures presented below as lackluster performance from 1978-1980. However, in 1981 a team from the International Air Transport Association (IATA) was invited to study KA and make recommendations for its improvement. This team of industry experts made two recommendations: first KA needed a modern fleet and second that management should be reorganized. The second recommendation was acted on immediately, and we will show that this brought some positive results. The first and more basic recommendation was never implemented during the period of this study.[7]

Kenya Airways' financial performance has always been very poor. Figure 14 shows that the rate of losses on total assets has averaged 25% from 1978 to 1983. The rate of loss has decreased steadily since 1980 when it peaked at 34.4% of total assets. By 1983 losses had been reduced to 20% of total assets. The press reported in late 1984 that KA broke even in 1983/84 and would report a small surplus in 1984/85.[8] The accounts for those years were not available to the author at the time of writing. An increasing portion of these losses has gone into interest payments as KA has resorted to heavy borrowing to stay in business.

Figure 15 shows KA's deteriorating financial condition. The airline was started with equity of less than 10% of total assets. Repeated losses and resort to borrowing mean that the ratio of

Fig 14 Rate of Return on Investment

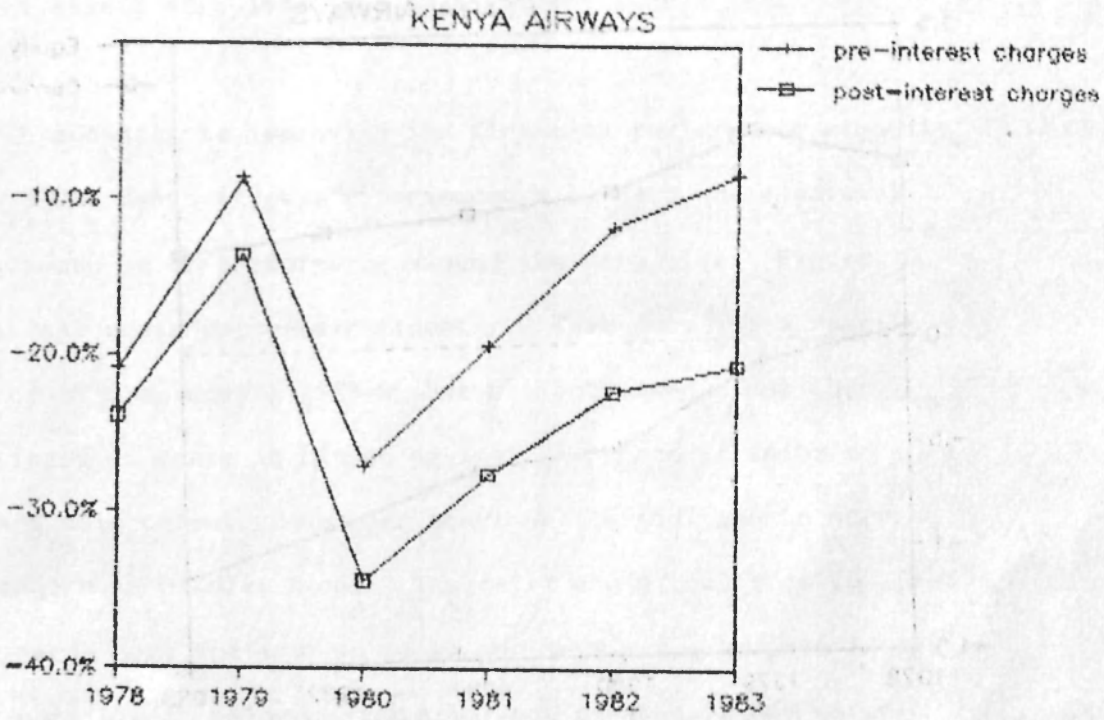
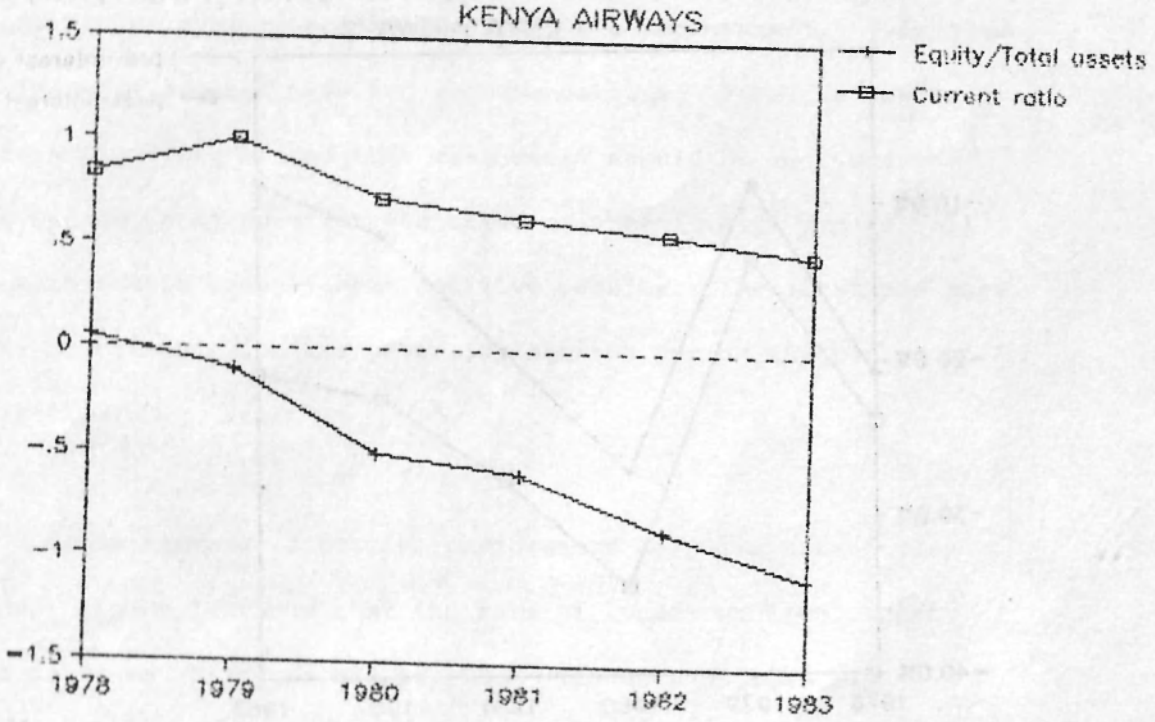


Fig 15 Financial Condition



equity to total assets has continuously declined. By 1983 accumulated losses exceeded total assets by over 40%. Working capital was never sufficient and has declined steadily. By 1983 current assets were less than half current liabilities.

In addition to improving its financial performance steadily since 1980, Kenya Airways experienced a turnaround in several other measures of performance around the same time. Figure 16 shows real costs/passenger-kilometer. This cost index rose at a rate of 6% p.a. during 1978-81 but has not risen since then. This index of costs is biased against KA, since it is based only on KA's main output, passenger service. In addition to serving passengers KA handles cargo. Figure 17 shows that from 1981 to 1983 cargo grew faster than passenger services., so that if it were possible to allocate costs between passengers and cargo, real unit costs in passenger service probably declined a little from 1981 to 1983.

Figure 18 suggests that KA has made some good progress in rationalizing operations. From 1978 to 1981 the load factor for passengers increased steadily, from 45% to 61%, a level considered good by international standards. It has stayed approximately constant since then. Since 1981 the load factor for cargo has increased steadily, from 48% to 62%.

In Figure 19 we compare total passengers carried by Kenya

Fig 16 Real cost/passenger-km

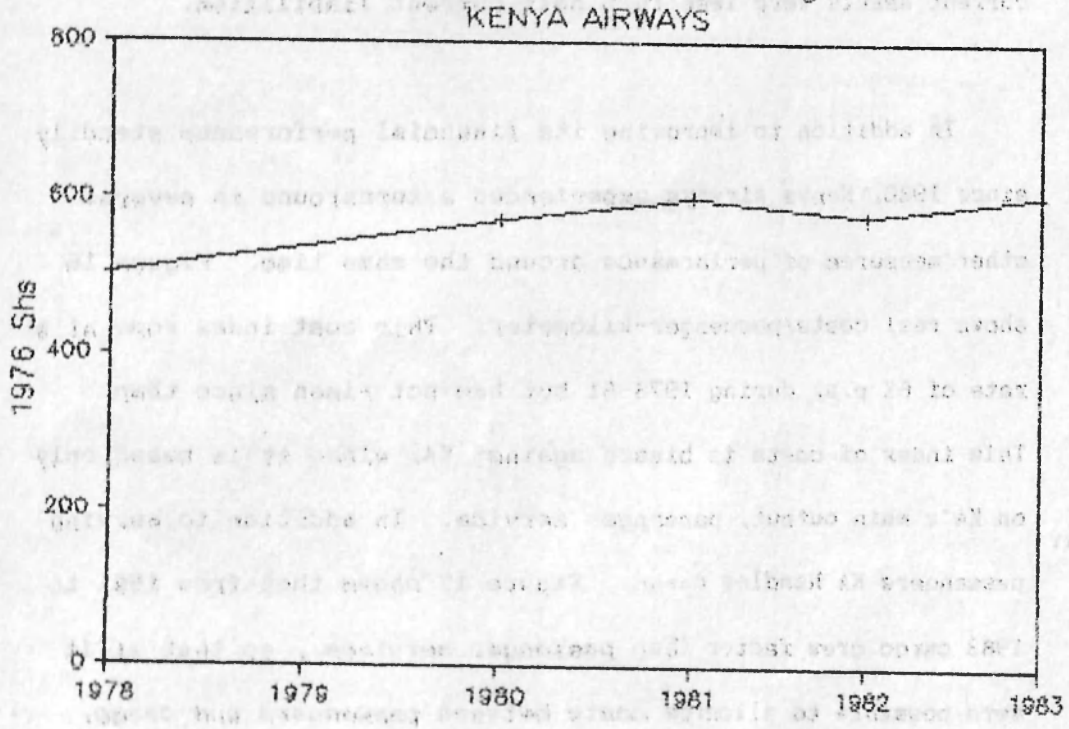


Fig 17 Performance Indices

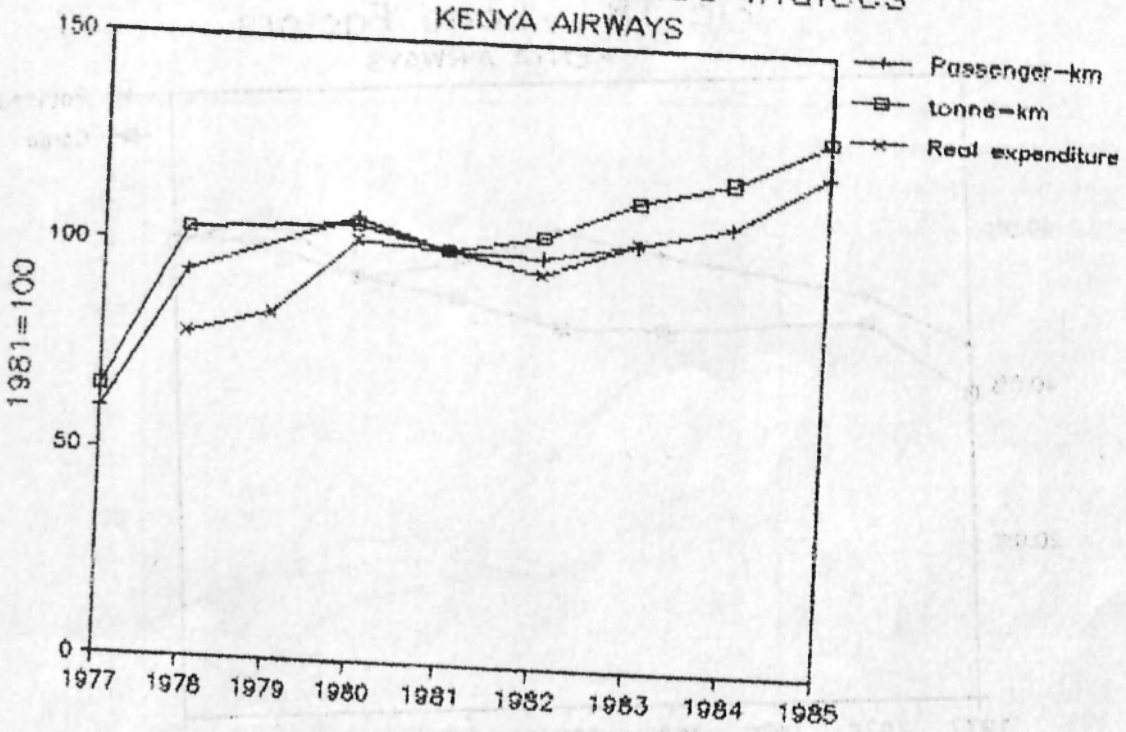


Fig 18 Load Factors

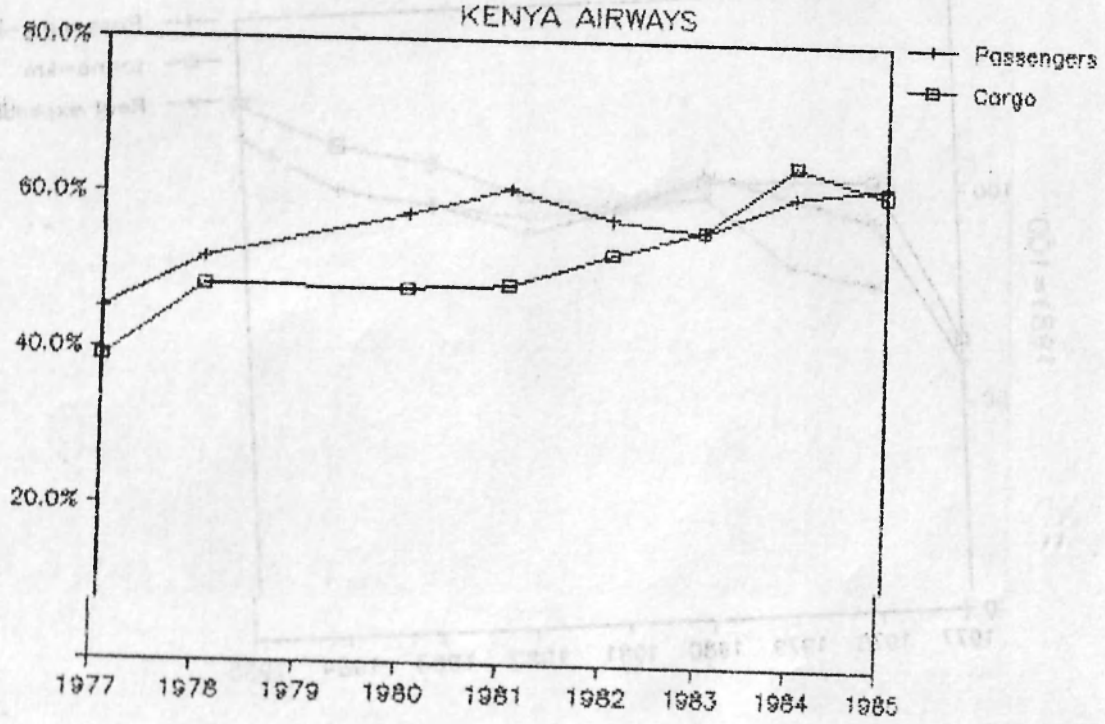
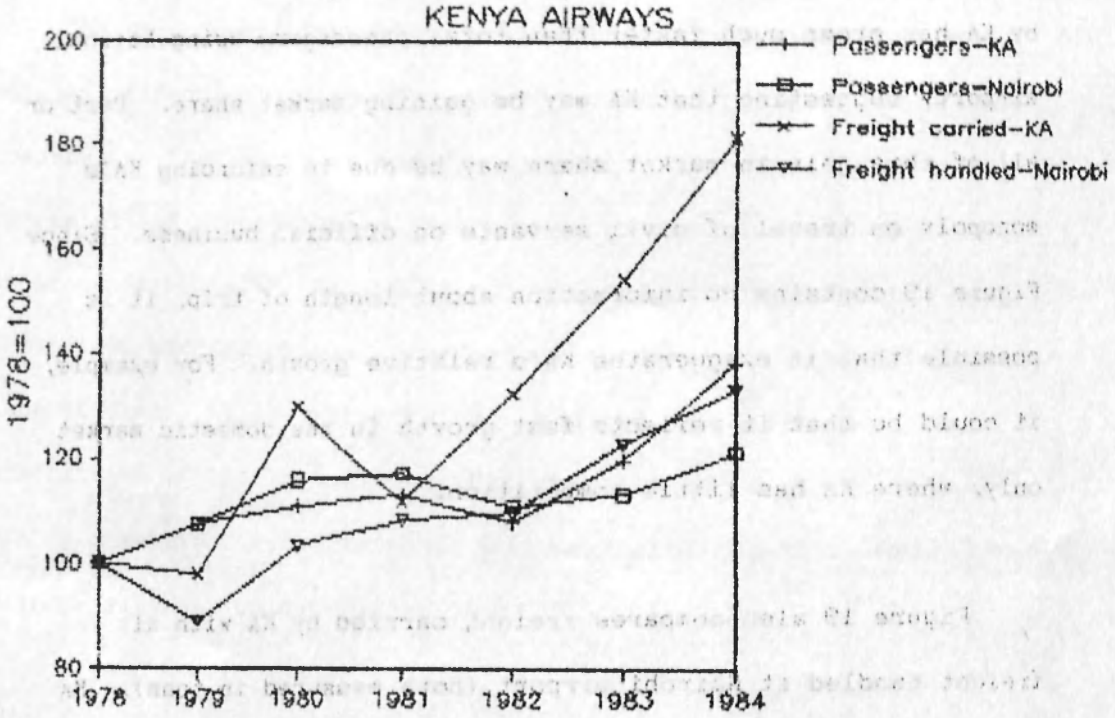


Fig 19 Output Indices



Airways with total passengers using Nairobi airport. The two magnitudes grew in close synchronization from 1978-82, suggesting that Kenya Airways probably approximately retained whatever market share it had at inception. Since 1982 passengers carried by KA has grown much faster than total passengers using Nairobi airport, suggesting that KA may be gaining market share. Part or all of this gain in market share may be due to enforcing KA's monopoly on travel of civil servants on official business. Since Figure 19 contains no information about length of trip, it is possible that it exaggerates KA's relative growth. For example, it could be that it reflects fast growth in the domestic market only, where KA has little competition.

Figure 19 also compares freight carried by KA with all freight handled at Nairobi airport (both measured in tons). KA has had much faster growth of freight traffic than has the industry as a whole. Furthermore, it is less likely that the growth has been on domestic freight, so it probably indicates increased competitiveness on the part of Kenya Airways.

By 1984, it was the judgement of the trade press that KA's management had performed well, but that further progress was impeded by obsolete equipment.

> The fact that the bulk of the tourists visiting Kenya's game parks and beach resorts travel on foreign airlines to reach Nairobi cannot be blamed on the Kenya Airways' management, which has done its utmost to promote the national carrier

abroad and to provide a high standard of in-flight service. But however good the promotion and cabin service few passengers voluntarily select Kenya Airways for long-distance flights to or from Nairobi when able to fly on a carrier operating widebody equipment.[9]

The main reason for delay in purchase of new aircraft was national financial stringency. Virtually since KA's creation the country has been short of foreign exchange, operating under a series of IMF stabilization programs which have limited such major investments.[10] By 1986 the investment could no longer be postponed, since European noise regulations banned KA's old 707s from landing. At that time KA acquired two new Airbuses. The predictions of the trade press that new aircraft could make KA a viable competitor with the major European airlines which serve Nairobi will now be put to the test.

In summary, it seems that Kenya Airways was started under very difficult conditions, with no equipment and virtually no financial base. Their financial performance has been bad, and its position has been made worse by the policy of financing it almost exclusively via loans. On the other hand, the corporation has performed credibly in terms of rationalizing its operations and competing for business with other airlines, showing steady improvement on most measures, both financial and operational, since 1980 or 1981.

F. Kenya National Transport Corporation

The Kenya National Transport Corporation(Kenatco) appears to have come into the public sector in a rescue operation around 1966, or perhaps somewhat earlier. Prior to its rescue by the public sector Kenatco was a "large and confused co-operative transport company founded in 1964, in which some prominent people had a stake."[11] It appears that many things have remained confused at Kenatco ever since.

Kenatco has two lines of business, goods transport via lorries, and taxis. During the mid sixties it also operated a fleet of inter-city passenger buses, but government decided to reserve that sector for independent African operators.[12] Though no figures are presented, the notes in the annual reports suggest that the major share of Kenatco's transport business was international trade. As conditions became more difficult during the seventies with security in Uganda deteriorating, foreign exchange shortages in Zambia, and finally the closure of the border with Tanzania, this business became less viable. There was a respite from these woes during the coffee boom. During 1980 coffee generated 80% of turnover.

Taxi operations were increased following the IMF meetings in Nairobi, when Kenatco was bequeathed the large fleet of Mercedes acquired for transporting the many VIPs who attended that

meeting. Kenatco has since then maintained a taxi fleet consisting only of Mercedes, a policy made possible by waiver of import duties.

Several times there have been major upheavals in the company with most of the management being replaced. This happened in 1970, 1977 and 1980 or 1981, to the author's knowledge. In 1977 the new general manager made the following comments to the Board of Directors:

> The organization prevailing in the operation department at the time I came in was bad. Nobody knew who was doing what job, what vehicles were available and what work was in progress. No proper records were maintained and essential information for its running could only be obtained from the accounts department. The importance of loading documents was not appreciated in which case there was no control. In fact at the time, there were well over 400 DBO's which although issued to the various drivers had not been accounted for. They even did not know which driver was driving what truck and which driver was idle or off. In the circumstance no meaningful management reports...could be availed to management.[13]

He also reported that the company's stores were virtually uncontrolled. Creditors were not pursued for payment, nor were debtors paid. The secretarial department was neglecting its duties completely, including licensing of lorries, investigation of stolen property and debt collection. He furthermore complained that the "workshops are staffed with mechanics who are not trained at all and a lot of them were employed just because they knew somebody somewhere."[14]

The management situation does not seem to have improved, or anyway did not remain better for long. In 1983 Treasury staff noted that

> Kenatco's management lack the most important management tools for commercial enterprises, i.e. budgetary systems and perhaps costing systems...The Kenatco business is being done blindly...[15]

Figure 20 shows Kenatco's financial performance, which has been volatile, to say the least. Unfortunately, the accounts are not detailed enough to reveal the causes of the various wild swings in performance. Figure 21 reveals that since the mid seventies the company has been illiquid. The equity base began eroding in 1980, but had not disappeared entirely by 1982. The company was put under receivership in December, 1983. It is likely that if accounts were available after 1982 they would reveal continued poor performance.

Kenatco has never published any data reporting any physical measure of output. Turnover is shown in Figure 22. Since no information is available on either prices or output it is unclear how to interpret the upward trend in revenue.

Kenatco's precarious financial condition in the years immediately prior to its being placed under receivership was greatly weakened by a poorly implemented policy on security

Fig 20 Financial Returns

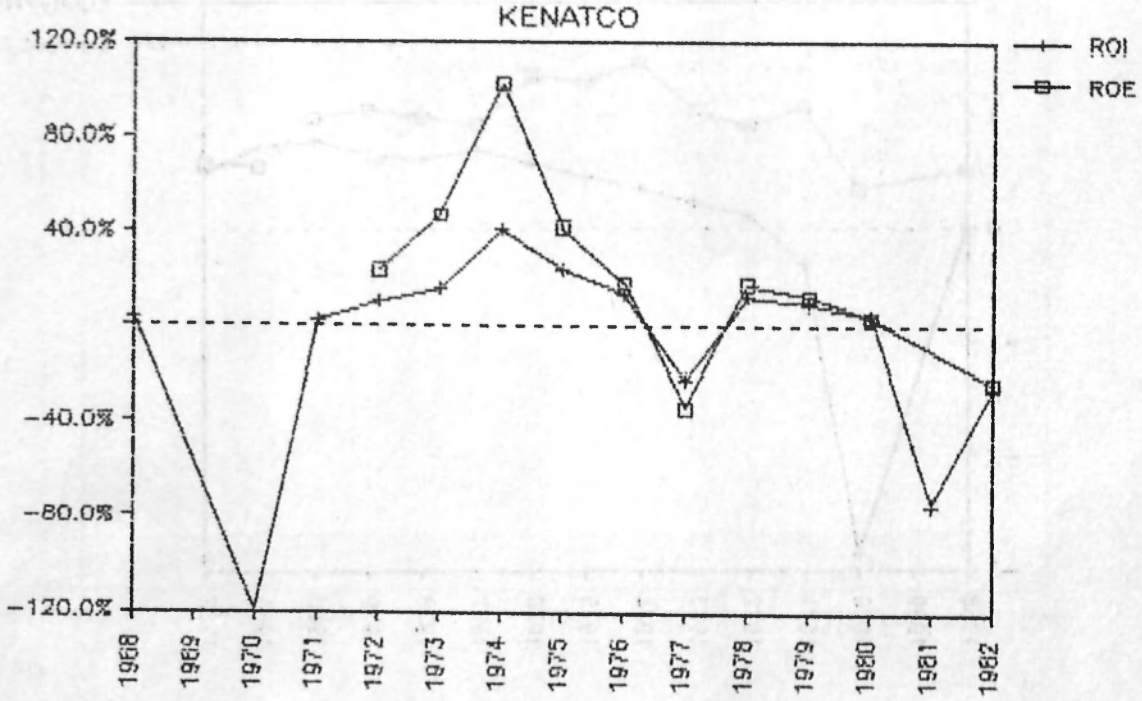


Fig 21 Financial Ratios

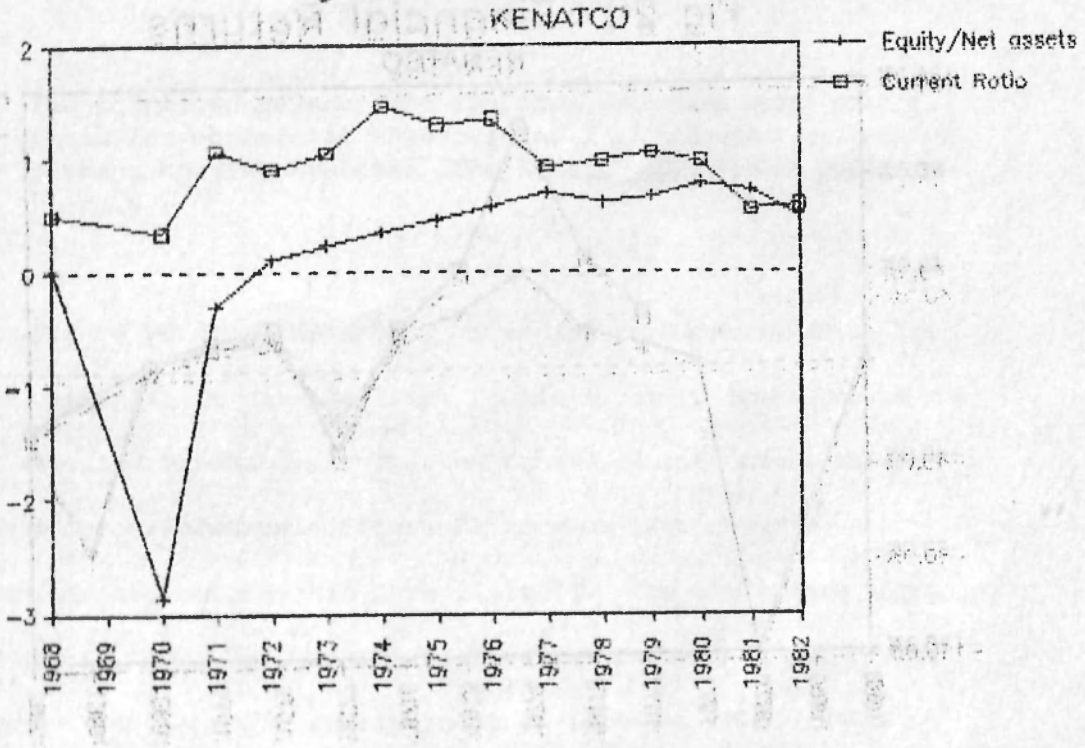
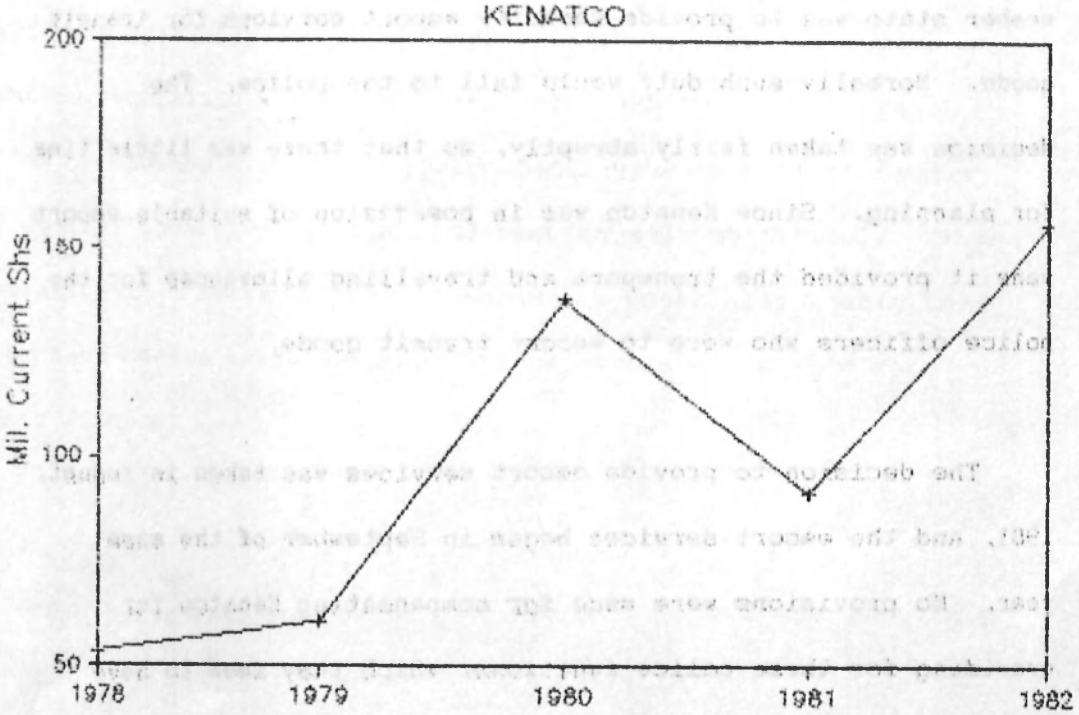


Fig 22 Turnover



escorts for transit cargo in the Northern Corridor Transport System.'[6] In 1981 Kenya agreed with Uganda, Rwanda, Burundi, Zaire and the EEC that greater security was needed and each member state was to provide security escort services for transit goods. Normally such duty would fall to the police. The decision was taken fairly abruptly, so that there was little time for planning. Since Kenatco was in possession of suitable escort vans it provided the transport and travelling allowances for the police officers who were to escort transit goods.

The decision to provide escort services was taken in August, 1981, and the escort services began in September of the same year. No provisions were made for compensating Kenatco for providing for these police functions, which they seem to have provided not only for their own traffic, but also for other transporters. Invoices submitted to the Office of the President were returned "with the remarks that no funds were allocated for that purpose." This condition is understandable for the 1981/82 fiscal year, the budget for which had already been approved when the matter arose. However, the 1982/83 budget and the 1983/84 budget also failed to make provisions.

By 31 May, 1983 the amount outstanding to Kenatco for escort services was Shs 12.4 million, an amount equal to nearly one third of Kenatco's net assets. At that time Kenatco was living on an overdraft on which it paid 16% interest. There can be no

doubt that Kenatco's decline was hastened by this policy, for which it can hardly be held responsible.

Current policies encourage and enforce parastatals to engage in forward planning and budgeting, a laudable goal. However, it must be recognized that when firms' attempts to plan are swamped by major upheavals in their environment, upheavals often caused by central government itself, the results will be minimal. Firms operating in competitive environments are especially unable to bear such sudden extra demands when no provision is made for their finance.

G. Kenya Railways

The Kenya Railways Corporation began operations in 1978 following the breakup of the East African Community. Prior to that it had two other incarnations after independence, as the East African Railways and Harbours (1963-68) and as the East African Railways (1969-73). We will consider the railway throughout the period without distinguishing its various incarnations. Except where noted, data presented for the 1963-68 period apply only to the Railways' operations, not to the Harbours.

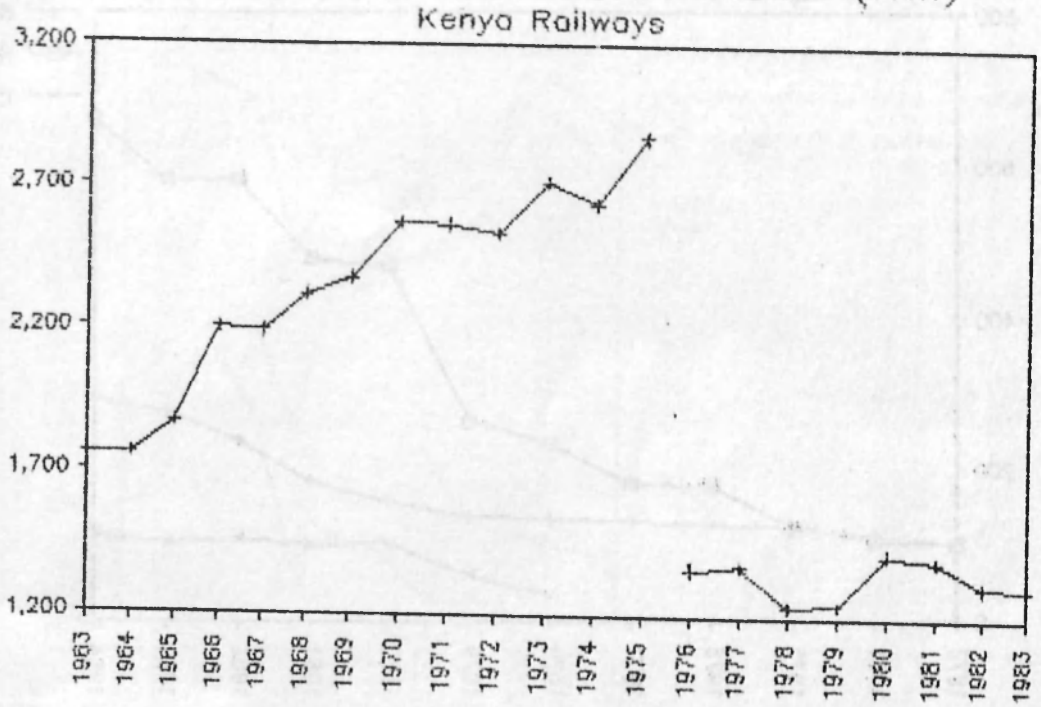
During the sixties and early seventies freight traffic was

growing fast, as shown in Figure 23. Since the late seventies, however, KR's traffic has stagnated as competition from other modes of transport has increased. Figure 24 shows that in value terms road transport has increased much faster than rail since 1975. The pipeline has also diverted traffic from rail since it began operating in 1978.

This shift of traffic away from the Railway was largely due to the breakup of East African Railways.[17] Figure 25 shows that through the mid-seventies transit traffic was an important part of total traffic. However, following the breakup of EAR, conditions for transit traffic were unfavorable to rail. Uganda Railways was ill-equipped to start with and continued to deteriorate, so that by 1980 they were depending on five branch line locomotives for motive power. Furthermore, conflicting claims between KR and UR made cooperation virtually impossible.

At the same time that lack of cooperation between the railroads made transit by rail very difficult, large excess capacity existed in road transport.[18] Transporters who had plied the southern routes found their business there cut off by Zambia's foreign exchange problems and the eventual closure of the border with Tanzania. The completion of the Kenya Pipeline also released a large fleet of road tankers which began to compete with the Railways to transport oil products in transit to Uganda.

Fig 23 REVENUE TON-MILES (mil)



Note: Figures prior to 1976 include Tanzania and Uganda.

Fig 24 Index of Value of Output

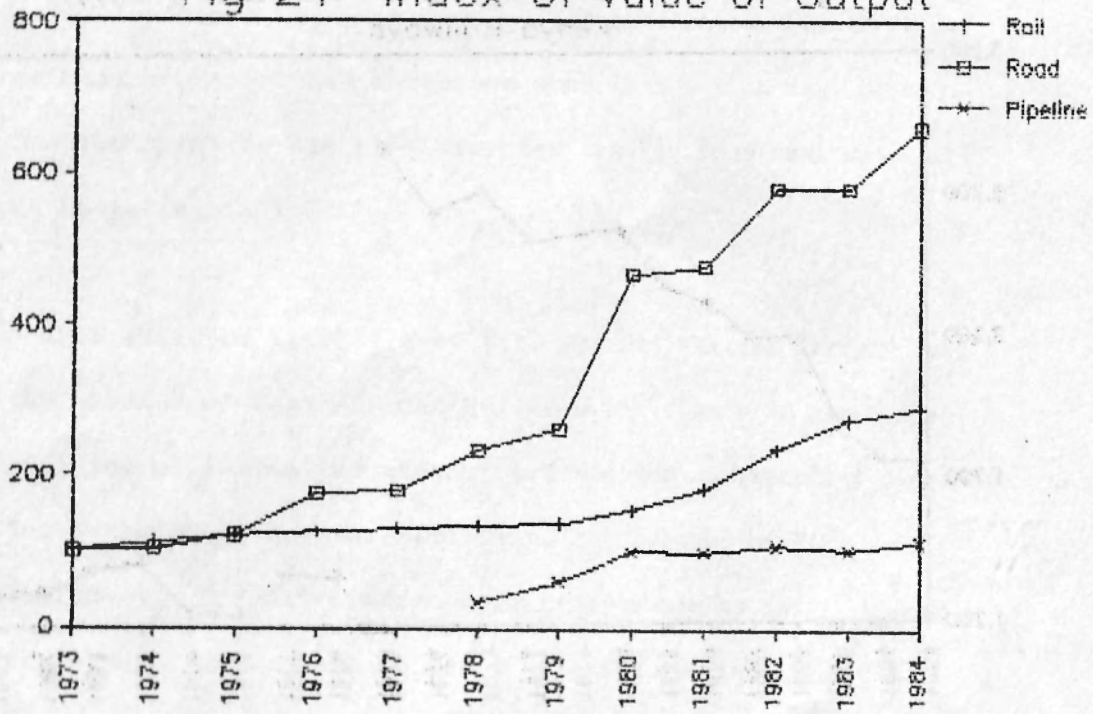
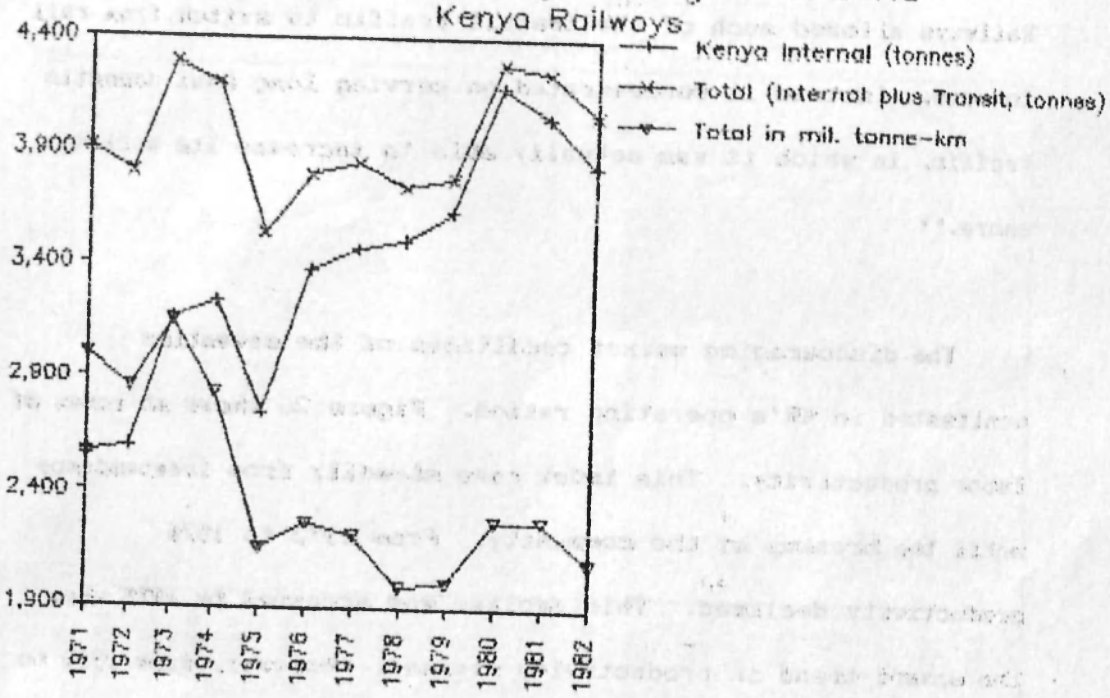


Fig 25 Railway Freight Traffic



In light of these difficult market circumstances Kenya Railways allowed much of the transit traffic to switch from rail to road. Instead it concentrated on serving long haul domestic traffic, in which it was actually able to increase its market share.[19]

The discouraging market conditions of the seventies manifested in KR's operating ratios. Figure 26 shows an index of labor productivity. This index rose steadily from independence until the breakup of the community. From 1973 to 1978 productivity declined. This decline was arrested by 1978 when the upward trend in productivity resumed. However, from 1980 to 1983 an alarming downward trend in productivity began.

All of these changes in productivity have been mirrored in cost performance, as shown in Figure 27. Real unit costs declined steadily in the period before the breakup of EAR. They jumped during the breakup and then seemed to be coming back under control again from 1978 to 1980.

In view of the increasing productivity and falling costs, real average prices were allowed to fall in the early period. They fell by over 50% from 1965 to 1973. Part of the pressure to lower real rail rates came from increasing competition from road transport. The completion of the paving of the Mombasa-Nairobi

Fig 26 Traffic units/employee

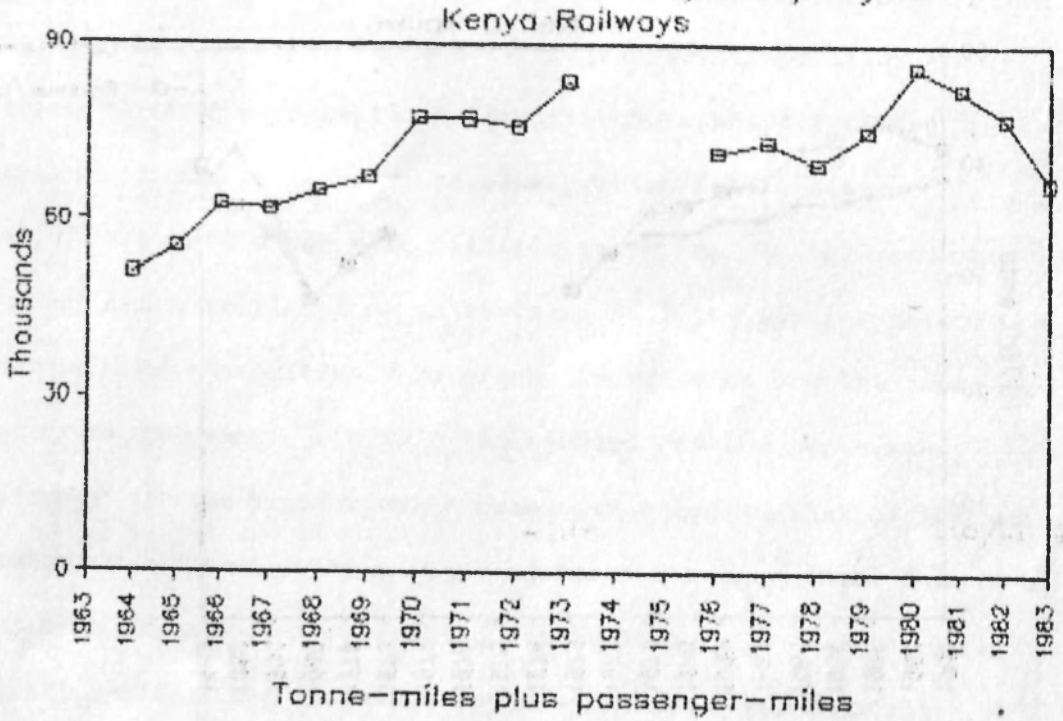
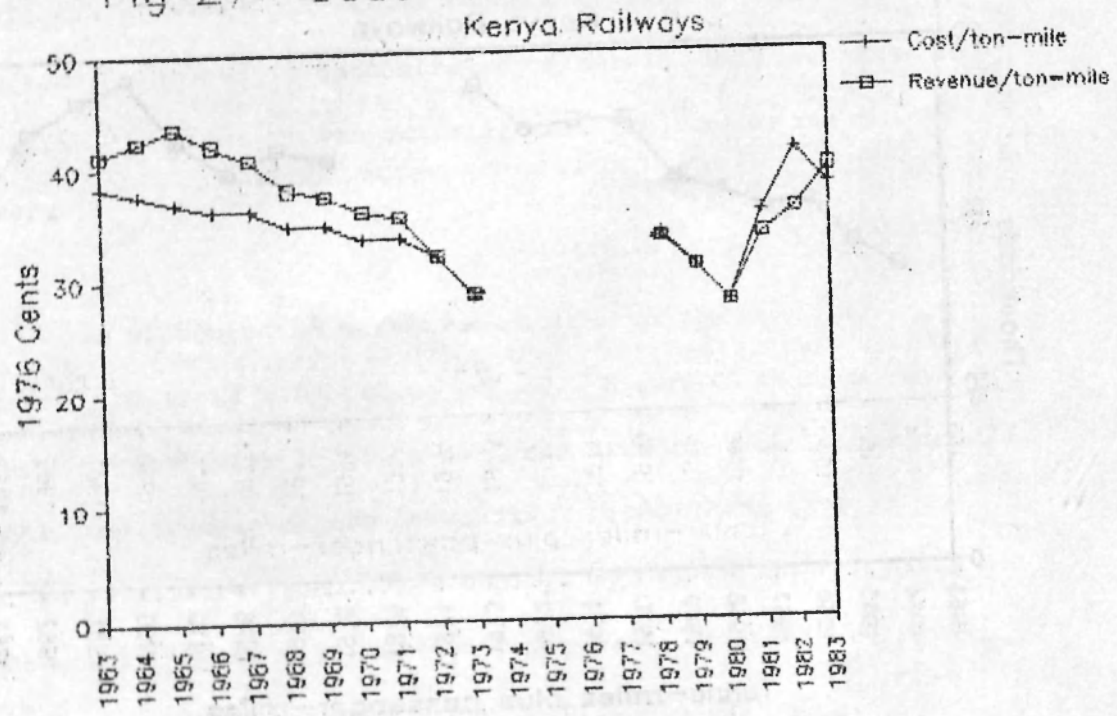


Fig 27 Cost and Revenue Performance



road in 1967 made such competition feasible for the first time.[39] The completion of the pipeline from Dar es Salaam to Ndola in 1968 meant there was excess capacity in road tankers.[40] The railroad was especially vulnerable to this new competition because of its pre-competition rate structure which included various elements of value of service pricing (where higher tariffs are charged for more valuable goods, so the railroad can extract higher profits from shippers). Rail tariffs for the highest value commodities were gradually squeezed and the rate structure compressed. In 1973 the average revenue per tonne-kilometer for the highest value commodity exceeded that of the lowest value commodity by a ratio of about three to one. This ratio fell continuously, reaching two by 1981. By 1983 the World Bank judged that the "tariff structure produces an acceptable correlation between costs and revenues for a wide variety of traffic."[41]

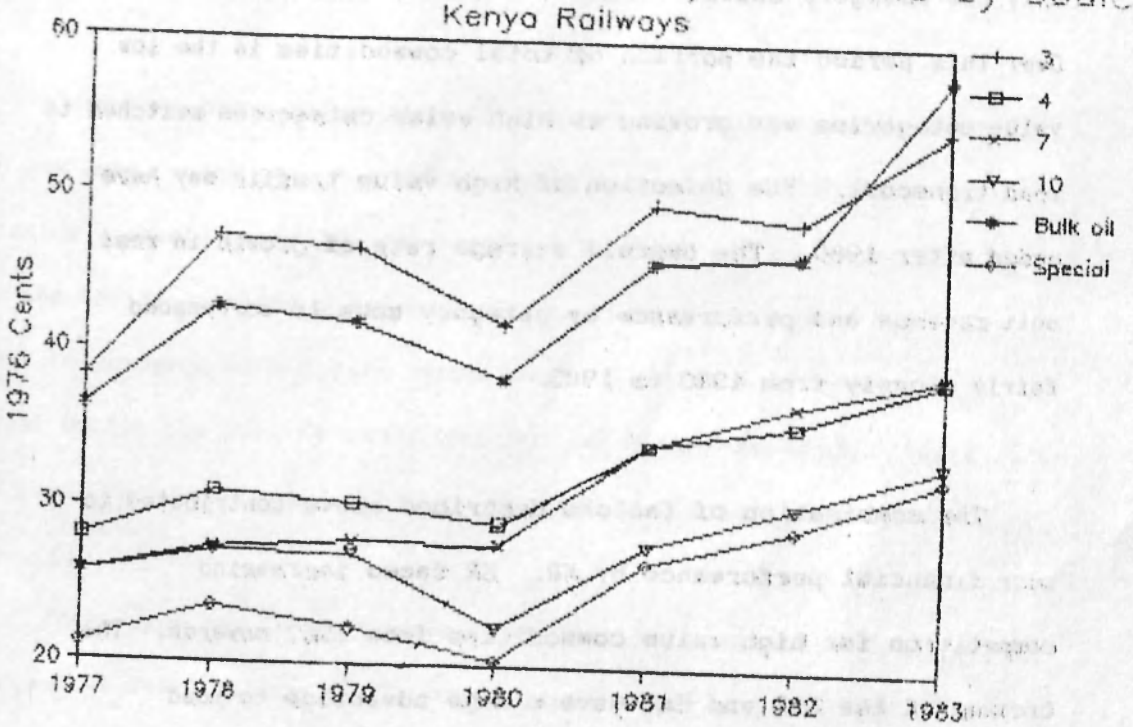
Despite efforts on the part of KR to bring tariffs into line with costs, there are two factors which inhibit them from fair market based competition with road transporters. The first problem is the existence of special tariffs outside the tariff structure, tariffs dictated by Government with the goal of subsidizing certain commodities, primarily exports. The subsidized commodities include fluorspar, molasses, sisal, soda ash and maize and wheat. In 1983 these commodities accounted for 35% of tonnes carried by KR. Naturally the existence of such a

large portion of subsidized traffic means that in order for KR to cover its costs it must charge higher rates on other commodities, commodities for which it competes directly with road transporters.

The second problem which keeps KR from adjusting its tariff schedule to make it truly competitive with road is that KR is expected to cover its total costs, including the cost of maintaining the railroad infrastructure. Road transporters, on the other hand, do not bear the cost of maintaining the road infrastructure. World Bank consultants report that road-user charges in the form of fuel taxes, registration and licence fees and import duties on equipment and vehicles do not cover the marginal cost of road use, especially for heavy vehicles which compete directly with rail transport.[22] The result is that market signals are encouraging shippers to choose road over rail in situations which do not reflect true costs to the economy. There is little that KR can do to combat this problem, since both rail tariffs and road use charges are decided at cabinet level. Meanwhile the combination of policies is contributing to severe financial strains at KR.

There is some evidence that flight of high value commodities to road transport has occurred. Figure 27 shows that the real average revenue per tonne-mile received by KR declined by over 20% from 1978 to 1980. Figure 28 shows average real revenue per

Fig 28 Average real revenue/ton-mile by scale



tonne-mile for the major tariff categories. Out of the six tariff categories which accounted for 88% of revenue in 1978, only one category showed a decline equal to the average decline. Over this period the portion of total commodities in the low value categories was growing as high value categories switched to road transport. The defection of high value traffic may have ended after 1980. The overall average rate of growth in real unit revenue and performance by category seem to correspond fairly closely from 1980 to 1983.

The combination of factors described above contributed to poor financial performance by KR. KR faced increasing competition for high value commodities from 1967 onwards. The breakup of the EAR and EAC gave a huge advantage to road transporters in the transit segment of the market. Real average revenues continued to decline after the breakup of EAR and establishment of KR, but by that time revenues had declined to where they no longer covered total costs including infrastructural maintenance costs.

As a result of the disruptions of the breakup of EAR and inadequate financial base, operations of KR suffered. This can be seen in Figure 27 where unit costs jumped at the time of the reorganization. These factors combined with a management which has not been characterized by a market oriented approach,[23] as well as the general shortage of foreign exchange have led to

operating problems in the early eighties. These operating problems can be seen in one way in Figure 27, which shows an alarming increase in unit costs from 1980 to 1982.

There are other signs that things are not as they should be. KR has been losing out on some business because of inability to provide adequate capacity, in addition to business it loses due to the tariff problems discussed above. For example, in 1982 the cost to shippers of shipping containerized freight by road was at least double the cost by rail, yet 80% of container traffic went by road, because KR was unable to provide sufficient capacity.[24]

These problems in equipment deployment are shown in Table 1. Locomotive availability has been dropping at an alarming rate. Both the 1982 and 1983 KR annual reports blame this on unavailability of spares due to foreign exchange shortages. Whatever the reason for the problems with locomotives, it represents a gross mis-allocation of resources to hold 30-40% of the rolling stock of the KR idle.[25] As Table 1 shows, when the number of engines available falls by 20-25%, utilization of all other rolling stock falls, and unit costs increase accordingly.

TABLE 1 OPERATIONAL INDICATORS

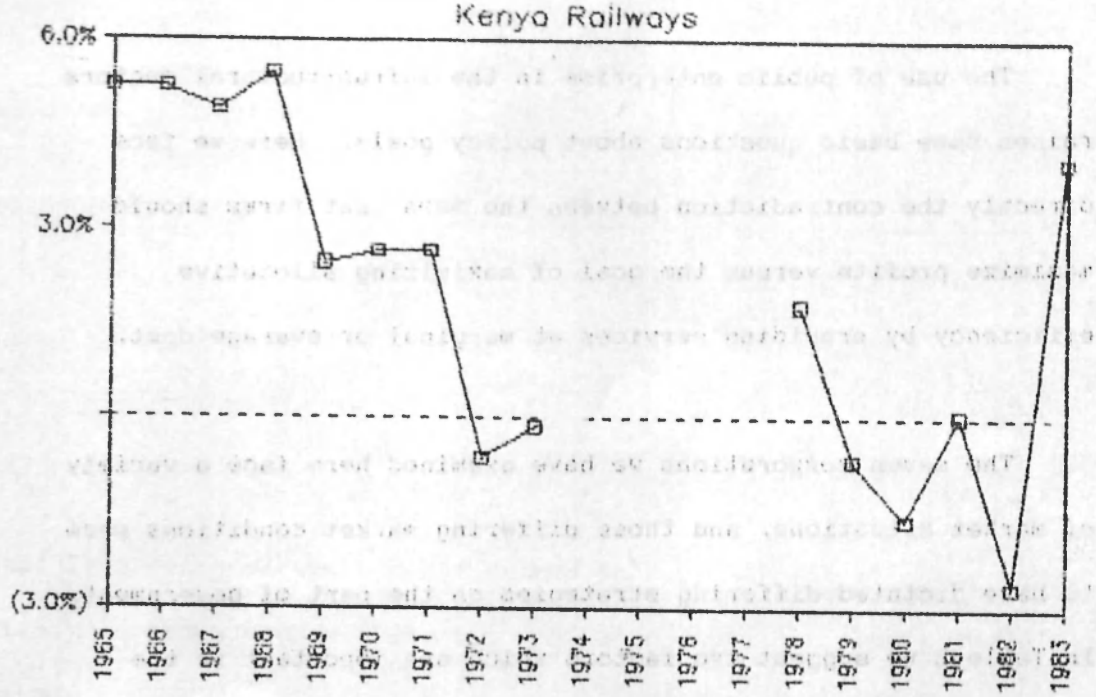
	1978	1979	1980	1981	1982	1983
1. Average availability (%) diesel line locomotives	62	66	68	72	69	56
2. Average number of main line locomotives available for traffic		91.3	99.1	104.7	99.9	81.9
3. Average wagon availability (%)		81	82	81	85	87
4. Average turnaround time (days)						
general freight wagons	10	12	13	14	15	
tank wagons		12	12	13	16	
5. Productivity per available wagon-unit per year (tonne-km '000)	182	230	241	233	211	

Sources: World Bank, Kenya Transport Sector Memorandum, Annex 8 and KR annual reports, various years.

Figure 29 shows financial performance. The data from 1965-68 are for the combined operations of the railways and harbors. Through the sixties returns were small but positive, and were adequate to cover interest payments. Since the early seventies returns have often been negative. The railways has always been a highly leveraged operation--equity has never exceeded 30% of net assets, and has on occasion been negative. To operate such a highly leveraged company on such a narrow margin invites liquidity problems, as reserves can be eroded very quickly. The risk inherent in this strategy is attenuated by the fact that the government holds a large part of the railways' debt and has converted it to equity as a form of bailout on several occasions.

Fig 29 Rate of Return on Net Assets

Kenya Railways



III. Prices, Accumulation and Efficiency

The use of public enterprise in the infrastructural sectors raises some basic questions about policy goals. Here we face directly the contradiction between the idea that firms should maximize profits versus the goal of maximizing allocative efficiency by providing services at marginal or average cost.

The seven corporations we have examined here face a variety of market situations, and those differing market conditions seem to have dictated differing strategies on the part of government. In Table 2 we suggest two factors which are important in the choice of pricing policies for these firms. The first factor which differentiates these firms is shown vertically, and it is the question of whether the service in question is a natural monopoly. The second factor is whether demand is growing rapidly. Some of the firms have reached maturity, while others can expect rapid growth in the foreseeable future.

From this dual classification scheme we arrive at a matrix with four cells. Yet all of the firms we are examining fall into three of the cells. This is not an accident. The cell which is empty is that for firms which are not natural monopolies, but for which rapid growth is essential. In Kenya there are no such firms. In a market which is not a natural monopoly, even a

TABLE 2 CLASSIFICATION OF FIRMS BY MARKET CONDITIONS

NATURAL MONOPOLY?	NEED FOR RAPID EXPANSION? YES	NEED FOR RAPID EXPANSION? NO
YES	KPL KP&T	KPC KPA
NO		KA KENATCO KR

rapidly growing market doesn't depend on rapid growth of a parastatal firm. In Kenya such markets are open to competition from private firms.

We can now examine the other three cells and find commonalities about their performance. The first cell contains those firms which have natural monopolies in sectors in which demand is growing fast.

Granted that Kenya desires that such strategic firms should be in the public sector, a key goal of government is to ensure their access to capital, so that their expansion can keep pace with demand. We saw above that both of these firms have been allowed to charge prices which were high enough to generate funds which financed most of their expansion. A by-product of such generous pricing policies was sufficient liquidity that the firms

seem to have been able to function smoothly, with no major operational problems.

There has been grumbling from time to time about the use of high prices to finance expansion. In 1984 the Public Law Institute formally objected to a proposed electricity tariff increase which had been justified in terms of generating revenue for reinvestment. The P.L.I. claimed that the proposed tariff was "punitive" and "undermined the government's economic and development policies of alleviating poverty, improving the welfare of Kenyans and providing rural electrification," as well as adding to inflation. The P.L.I. argued that "the incidence of the proposed increase is disproportionately laid on the present, in relation to future consumers."[26]

Another argument against the policy is that KPL still has some private shareholders, including some foreigners, so that a policy which allows monopolistic prices and profits is questionable on distributional grounds.[27] While these arguments have some merit, the alternative of competitive pricing and borrowing or government saving has seldom seemed attractive. The policy has in fact worked well in practice for both firms.

The second cell contains those firms which have a natural monopoly, but operate mature enterprises with no great need for expansion. The Kenya Pipeline Co. and Kenya Ports Authority fall

into this category. With these firms it would seem desirable to keep prices down near average total costs. Yet KPC operates in the petroleum sector which government has chosen to tax heavily. So the KPC has also been allowed monopolistically high prices, serving in effect as tax collector. This policy has minimized risk for the corporation and caused no notable distortions. The KPC was initially given a very small equity base, and the monopoly pricing policy has permitted it to gradually build equity. In other words, the monopolistic pricing policy has been used in lieu of a large initial investment on the part of government.

The KPA is different from KPC in that it was already physically complete at the time it was organized, and it was given a sound financial base from the start. It seems that at the time of its creation the KPA was allowed monopolistic prices and profits, but this policy has gradually been abandoned. Given the volatility of traffic in the early eighties it may be a desirable policy to allow prices somewhat above costs in order to ensure adequate liquidity for KPA. In order to prevent KPA from accumulating excessive reserves, this pricing policy should be combined with a policy where KPA pays corporation tax and dividends, as does KPC.

Finally we come to the last cell, which includes those parastatals which operate in a competitive environment. These

firms' prices are set in accordance with a vigorous private sector. These firms' performance, while it may be seen as important, is not critical to government, since the services they provide are available from others. It is here where all the major problems can be found, both financial and operational.

These three firms, Kenya Airways, Kenatco and Kenya Railways, have presented a conundrum to policy makers. On the one hand, it is not essential that the government should own such firms, especially KA and Kenatco. In times of financial stringency there is no clear reason why they should have priority in allocation of scarce investment shillings, and so they haven't. On the other hand, these firms are in the public sector. Given that they are there, the stingy treatment they have received from their shareholders, the government, has landed every one of them in financial and operating problems.

The government seems not to have understood the limitations imposed on it in its role of shareholder by the competitiveness of the markets in which these firms function. One of the defining features of a competitive industry is that prices are driven down to long-run average costs, so there is no margin from which to finance socially mandated, non-commercially oriented activities. Yet, as we saw in the case of Kenatco and KR, government has not refrained from mandating such activities. Unless the government realizes that competitive firms have no

ability to finance such activities and either refrains from mandating them or provides the necessary finance, poor performance is likely to continue among parastatals in competitive markets.

Government seems also not to have appreciated that cutting investment budgets to sub-optimal levels has different consequences than cutting government consumption. With enterprise-type activities a shilling cut from the budget in terms of investment is not necessarily a shilling saved in the net public exchequer, since it may result in financial losses to the enterprise. This is all the more true where the enterprise is in a competitive market. A firm with improper capital equipment may be unable to attract customers, as we saw with KA. Undercapitalization can also cause higher operating costs, which quickly leads to financial hemorrhaging and operating problems, as we saw with KR.

In each of these three cases it is clear that what is needed is for government to better fill its conventional role of shareholder. No heroic new controls on management are called for, rather the converse is true. In the case of Kenya Airways, the firm needs new capital equipment and an equity base. The managers seem to have been doing their best under difficult circumstances.

The case of Kenatco is least clear. Management problems seem to have persisted over several years and several management teams, raising again the question of why and whether it is really desirable for the government to own one firm in a competitive industry. Nonetheless, it is clear that Kenatco should be treated more like a firm. It cannot suddenly be burdened with providing police escort services to the whole sector, yet remain competitive.

Finally, Kenya Railways seems to have been neglected. It was left to compete on unequal footing with a vigorous private transport sector which doesn't share the burden of infrastructure maintenance. The result of this unfair competition has been large losses, poor maintenance and average costs substantially higher than necessary. Recent efforts to impose user taxes on roads and control axle loadings are steps in the right direction. They should be pursued; poor performance by KR is far from inevitable.

IV. Conclusion

By and large, the history of public enterprise in the infrastructural sector in Kenya has been a success. Seven firms have operated. Impressive growth in services has been achieved, while unit costs have by and large been contained. This has been especially true in those firms which operate monopolies. The

government has allowed them to charge prices which permit them to finance large parts of their growth from internally generated funds. This policy has contributed to financial stability and liquidity among those firms, and has contributed to lack of operational problems. The policy makes most sense in those areas in which there is large growth to be financed. Even in a firm like the Kenya Pipeline Co., which is essentially mature, the policy permitted successful use of what is normally a risky strategy, use of very high levels of borrowing. In cases where large growth doesn't need to be financed the generous pricing policy should be combined with use of corporation taxes and dividends in order to stop excess accumulation of funds at the enterprise level.

Another group of enterprises has not fared quite so well. Those enterprises which compete with private firms do not have the option of setting their prices at such generous levels. They are much more vulnerable to changes in market conditions. They are also much more vulnerable to risky policies chosen by their share-holder, the government. These policies have included high leveraging, as well as requiring the firms to subsidize certain of their customers (i.e. through railroad tariffs) or even their rivals (through provision of police escorts). All of the firms operating in competitive markets have experience financial and operating problems. These problems have been exacerbated by policies of the central government, which seems not to fully

appreciate the enterprise nature of these investments.

NOTES

1. World Bank, page 17.

2. World Bank, page 55.

3. World Bank, page 37.

4. World Bank, page 31.

5. World Bank, page 6.

6. See Grosh, "Performance of Financial Parastatals in Kenya: 1964-84," Working Paper No. 471 Institute for Development Studies, University of Nairobi, 1987.

7. World Bank, page 54.

8. Anthony Vandyk, "Kenya Airways awaits green light from government modernization program," Air Transport World, December, 1984, pages 79-82.

9. Ibid.

10. For a history of these austerity plans see Tony Killick in Killick, ed., The IMF and Stabilisation: Developing Country Experiences, Heinemann Educational Books, London, 1984.

11. Leys, p. 161.

12. Ibid., p. 161.

13.

14. Ibid.

15. Internal memo, Government Investments Division, "Analysis of Financial Status and Operations: Kenatco," 23 March, 1983.

16. Information for this section comes from Kenatco Transport Company Ltd., "Position Paper on Escort of General Cargo Mombasa-Malaba," mimeo, 13 June, 1983.

17. See World Bank, page 132.

18. See World Bank, page 133.

19. See World Bank, page 134.

20. See Leys, pages 160-161.

21. See World Bank, page 44.

22. See World Bank, page 51.

23. See World Bank, page 43.

24. See World Bank, page 62.

25. See World Bank, page 68.

26. Quoted in "Electricity: No to Hikes," Weekly Review, February 3, 1984, page 22.

27. See the editorial in the Weekly Review, March 23, 1984.

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